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ABSTRACT

This annotated bibliography lists books and journal articles published since 1976 which deal with health economics and which are based on health services research supported by the National Center for Health Services Research (NCHSR). Articles prepared by NCHSR staff are listed as intramural. All other articles cite the NCHSR grant or contract number that supported the research. The 193 citations appear alphabetically by author in one of seven categories according to their primary focus. "Alternative Delivery Systems" contains citations concerning health maintenance organizations, preferred provider organizations, freestanding emergency and ambulatory centers, and multihospital systems. "Hospital Economics" includes citations on rural hospitals, reimbursement, facility planning, market structure/competition, cost analysis, or casemix measurement. References to works on demand for services, indigent care, or access are included in "Income and Health." Citations under "Insurance/Financing" deal with the insurance industry, coverage/benefits, Medicare/Medicaid, corporate health plans, or catastrophic costs. Articles under "Long-Term Care" cover insurance/financing, alternative care settings, cost analysis, and deinstitutionalization. "Practice Patterns and Productivity" contains articles on variations in medical practice, supply/distribution of physicians, and the role of the non-physician. "Technology Assessment" includes articles on cost-effectiveness analysis, cost-benefits analysis, cost of illness, and diffusion of technology. (NB)

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Health Economics Research: An Annotated Bibliography

National Center for Health Services Research
and Health Care Technology Assessment

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March 1987

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service

FOREWORD

This annotated bibliography lists articles in journals and books published from 1976 through October 1986 (or forthcoming) dealing with health economics and that are based on health services research supported by NCHSR.

The bibliography is in seven broad subject categories. Items appear in one category only according to their primary focus. Annotations are based on the abstracts, which have been prepared either by the author or by NCHSR staff members. Articles prepared by NCHSR staff are listed as "intramural." All other articles cite the NCHSR grant or contract number that supported the research.

Because no bibliography seemingly ever is complete, authors, researchers, and other readers who note omissions are urged to bring them to our attention for inclusion in future editions.

Samuel Lin, M.D., Ph.D.
Acting Director

March 1987

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ALTERNATIVE DELIVERY SYSTEMS

- o HMOs
- o PPOs
- o Freestanding Emergency and Ambulatory Centers
- o Multihospital Systems

Alexander, Jeffrey A., Bonnie L. Lewis and Michael A. Morrisey. "Acquisition Strategies of Multihospital Systems." Health Affairs, Volume 4, Number 3, Fall 1985, pp. 49-66. Grant No. HS 05264.

The nation's community hospitals are undergoing a transformation in their corporate structure, their internal organization and in the economic incentives under which they have traditionally operated. While these developments are underway, myths are rampant about the processes by which hospitals decide to recast their futures. This paper deals with how seven multihospital systems approach the strategic questions about their respective futures. The findings were gleaned from interviews with multihospital system executives and data available to the AHA. One of the more interesting findings was that no system envisioned its future as solely or even mostly a provider of inpatient services. Rather, the corporate strategies called for the marketing of health insurance as well as the provision of medical care. Insurance services were usually linked to participation in preferred provider or health maintenance organizations. Another interesting finding was the disinclination of all of the systems to pursue growth for growth's sake alone. Instead, all carefully analyzed market conditions facing the hospital and most acknowledged they often declined invitations to absorb hospitals because of unfavorable market conditions. This was as true for religious and nonprofit secular systems as it was for investor-owned chains.

Ashcraft, Marie, et al. "Expectations and Experience of HMO Enrollees After One Year: An Analysis of Satisfaction, Utilization and Costs." Medical Care, Volume 16, Number 1, January 1978, pp. 14-32. Grant No. OEO 51517 administered by NCHSR.

The impact of HMO enrollment on utilization and satisfaction in a sample of industrial employees was investigated using a panel study design. Preenrollment and postenrollment ambulatory utilization rates, out-of-pocket costs and measures of satisfaction are presented for enrollees in two closed- and one open-panel HMO-type plan. Their health care experiences are compared to those of reenrollees remaining in the HMOs during both surveys, as well as to those retaining their Blue Cross/Blue Shield membership.

Lack of access to and dissatisfaction with previous sources of care distinguished the preenrollment experience of those who selected the closed-panel plans; their postenrollment experience produced increasing satisfaction reflecting that their expectations in these areas were met. Continuing enrollees in closed-panel plans were somewhat less satisfied after a year of experience than they were earlier. Those who joined the open-panel plan did so because of the expanded benefits and financial advantages which, their postenrollment experience showed, were accurately perceived.

Utilization patterns also changed: continuing enrollees in both types of plans made fewer illness but more preventive visits; new enrollees used greater numbers of both types of services after enrolling than before.

Berki, S. E., et al. "Enrollment Choice in a Multi-HMO Setting: The Roles of Health Risk, Financial Vulnerability and Access to Care." Medical Care, Volume 15, Number 2, February 1977, pp. 95-114. Grant No. OEO 51517 (c)E72 administered by NCHSR.

Results of an analysis of enrollment decisions in HMO-type plans are reported. Previous studies concern dual-choice situations; this paper deals with a quadruple-choice situation involving one open- and two closed-panel HMO-type plans as well as Blue Cross/Blue Shield (BC/BS). The risk-vulnerability hypothesis is disaggregated into its components and the results show that there is no adverse health risk self-selection in an employed population. The hypothesis of economic vulnerability is maintained when tested in terms of per capita income rather than the previously used measure of family income. It is shown that those who enroll in any HMO-type plan are younger and have larger families and lower per capita income than those who do not. No meaningful differences in terms of health status, health concerns, or prior utilization are found. Of the few differences found between those who enroll in closed- and open-panel HMO-type plans, having a private physician as the usual source of care is the most significant: those with an established physician relationship who join any HMO-type plan tend to follow their physician into the open-panel plan. The results should not be generalized to situations involving premium differences since the premium cost to subscribers in any of the plans considered here was fully paid by the employer. The validity of the results in terms of nonfinancial factors, on the other hand, is enhanced by the removal of cost considerations.

Berki, S. E., et al. "Enrollment Choices in Different Types of HMOs: A Multivariate Analysis." Medical Care, Volume 16, Number 8, August 1978, pp. 682-697. Grant No. OEO 51517 administered by NCHSR.

Enrollment decisions of a sample of an employed population choosing among open-panel and closed-panel HMOs and Blue Cross/Blue Shield are analyzed. This report, unlike previous ones, overcomes some of the difficulties of bivariate analysis by the use of the multivariate logistic probability model, logit. The results show that there are four consistent predictors of enrollment choice: previous source of care as the measure of access; family life stage and chronic condition per family member as indicators of health risk; per capita income as the measure of economic vulnerability; and health concern. Having a private physician as the source of care is the best single predictor, its absence predicting a higher probability of enrollment in the closed, and its presence in the open-panel HMO. Higher risk life stage families, younger and with more children, are more likely to join the open-panel plan than the closed or retain BC/BS; higher incomes and larger numbers of chronic conditions appear to have the same effects. Higher levels of health concern, on the other hand, predict a greater probability of choosing the closed-panel plan. The probability of enrollment in any HMO is predicted with more than 50 percent accuracy for 60

percent of the sample. Choice between open- and closed-panel plans is predicted with an accuracy in excess of 50 percent for 80 percent, and with an accuracy greater than 90 percent for over 10 percent of potential enrollees. The applicability of this approach to HMO feasibility analysis and planning is clearly indicated.

Budenstein, Mary Jane, and Virginia D. Hennelly. "Deterrents to Family Enrollment in a Prepaid Group Practice." Medical Care, Volume 18, Number 6, June 1980, pp. 649-656. Grant No. HS 02468.

Research suggests that there are three prime deterrents to enrollment for persons who are attracted to prepaid group practice (PGP): 1) reluctance to change imbedded habits; 2) low expected utilization (low risk); and 3) payment for health insurance through employment. This study tests the influence of these enrollment barriers by examining families of new PGP members who are grouped according to whether their family members joined (FP) or remained outside (IP) the PGP under examination.

The two groups of families do not differ in health status or past utilization as proxies of expected use of medical services. They do, however, differ according to the presence of a regular source of care. Although more IP and FP families report prior physician ties, the influence of this factor is diminished when other family characteristics are accounted for in a multivariate analysis. The variables explaining the most variance in enrollment type are family size, employment status and income. IP families are typically small (often without children), have two employees and a low adjusted family income. Although many PGPs have attempted to attract this family type through multitiered rate systems, it is doubtful that this approach can be effective in the long run. The broad practice of job-centered health insurance provides these families no systematic mechanism for combining their employee benefits to purchase a family plan and therefore little incentive to join a PGP family plan. Changes in the way health insurance is obtained are encouraged.

Burkett, Gary L. "Variations in Physician Utilization Patterns in a Capitation Payment IPA-HMO." Medical Care, Volume 20, Number 11, November 1982, pp. 1128-1139. Grant No. HS 03485.

Health care utilization data, using measures such as rates of hospitalization, physician visits, and specialty referrals, were collected for individual provider offices in an Individual Practice Association-Health Maintenance Organization (IPA-HMO) that used a capitation payment system to reimburse its primary physicians. Variations in health care utilization patterns between IPA offices were identified and examined for possible associations with other characteristics of these medical practices. As on indirect test of the effectiveness of the HMO's incentive system, it was hypothesized that IPA offices with a larger number of HMO subscriber-patients, and those with a longer duration of membership in the IPA would exhibit practice patterns that would conform most with the HMO's cost control objectives. Associations were found

between health care utilization measures and characteristics such as the specialty of physicians, but size of HMO patient load and length of IPA membership did not have the predicted effect. The findings of this study serve to identify several questions that need to be addressed in further assessments of the performance of IPAs that follow this general model.

deLissovoy, Greg, Thomas Rice, Dan Ermann and Jon Gabel. "Preferred Provider Organizations: Today's Models and Tomorrow's Prospects." Inquiry, Volume 23, Number 1, Spring 1986, pp. 7-15. Intramural.

Preferred provider organizations (PPOs) have recently attracted much attention as an alternative to both traditional fee-for-service medicine and health maintenance organizations. To examine their development and structure, a telephone survey with executives of more than 130 operational PPOs was conducted. Typical examples of the three most common types of PPOs--those sponsored by providers, insurers, and entrepreneurs--and the problems each faces in the increasingly competitive health care environment are identified. Approaches that innovative PPOs are using to deal expressly with these problems are cited.

Ermann, Dan. "Health Maintenance Organizations: The Future of the For-Profit Plan." The Journal of Ambulatory Care Management, Volume 9, Number 2, May 1986, pp. 72-84. Intramural.

For-profit HMOs will play a major role. Growth will result from development of new for-profit entities and the conversion of nonprofits. HMOs in need of capital have found the private capital markets attractive and are assuming a for-profit status in order to compete for available funds. Serious competition, however, may evolve from the growth of PPOs and "competitive medical plans." Several new researchable issues are identified.

Ermann, Dan, and Jon Gabel. "The Changing Face of American Health Care: Multihospital Systems, Emergency Centers and Surgery Centers." Medical Care, Volume 23, Number 5, May 1985, pp. 401-420. Intramural.

Today corporations are entering many arenas of health care and challenging traditional fee-for-service physicians and independent non-profit hospitals. Through a synthesis of nearly 700 articles including 50 empirical studies, this paper examines the growth performance of three non-traditional organizations: multihospital systems, freestanding emergency centers and freestanding ambulatory centers. Measures of performance include cost of care, access to care and quality of care. Study findings indicate that these three organizations have tended to locate in growing, middle-class, Sun Belt markets. Costs in freestanding ambulatory centers and emergency centers appear to be lower than in traditional hospital settings. During an era of cost-based reimbursement, multihospital systems increased the cost of care. Freestanding emergency and surgery centers tend to treat younger, healthy, middle-class patients and few Medicaid or uninsured patients. System hospitals

treat similar precentages of Medicare and Medicaid patients as matched, independent non-profit hospitals. Diagnosis-specific outcomes in freestanding surgery centers appear impressive, but do not adjust for severity of illness of patient characteristics. Based on structural measures of quality of care there was no difference between system and independent hospitals. Future research should investigate the effects of the entry into local markets of these organizations on traditional fee-for-service doctors and independent hospitals. A special concern is whether the growth of the three organizations will accentuate two-tier medical care.

Ermann, Dan, and Jon Gabel. "Investor-Owned Multihospital Systems: A Synthesis of Research Findings." For-Profit Enterprise in Health Care, 1986, National Academy Press, Washington, D.C., pp. 474-491. Intramural.

The paper summarizes research findings on the extent and nature of the growth of investor-owned multihospital systems. Questions of why these systems grow and the effects of this growth on cost, quality and access to care are addressed. A preliminary research agenda is proposed.

Ermann, Dan, and Jon Gabel. "Multihospital Systems: Issues and Empirical Findings." Health Affairs, Volume 3, Number 1, Spring 1984, pp. 50-65. Intramural.

This synthesis reviews "conventional wisdoms" about multihospital systems. By acquiring independent hospitals, systems are growing but at a modest rate of 3 to 5 percent annually. Systems have a preferred position in the capital markets compared to independent hospitals; they have taken advantage of this greater access to the capital markets and have produced a more ancillary-intensive and costly style of care. Although systems treat small percentages of Medicaid and uninsured patients, they treat proportionally the same number as do nonprofit, independent hospitals located in similar market areas. There does not appear to be any difference in the quality of care between system and independent hospitals. The major difference between independent and for-profit systems is locational choice--for-profit systems invest in the most profitable markets (e.g., Sun Belt states), and in areas where Blue Cross reimburses on the basis of charges. They avoid areas with mandatory rate-setting and certificate-of-need programs, and with large numbers of Medicaid patients. The article identifies several research questions that require further study.

Ermann, Dan, Gregory deLissovoy, Jon Gabel and Tom Rice. "PPOs: Issues for Employers." Health Care Management Review, Volume 11, Number 4, Fall 1986, pp. 29-36. Intramural.

Factors such as foreign and domestic competition, tax changes and the realization that an increased portion of production costs are attributable to health benefits, have forced firms of all sizes to concentrate ever greater resources on cost control. The result is

that employers and labor support the development of alternative delivery systems and new, innovative approaches for delivering quality health care in an efficient manner.

One such delivery system, Preferred Provider Organizations (PPOs), offers the promise of cost control and high quality as well as the flexibility demanded by employees. PPOs place a greater burden on the self-insured employer in terms of assuming risk. The question remains as to the future of PPOs, specifically which type (e.g., provider-sponsored or insurer plans) is most likely to succeed in controlling costs and providing quality care. A comprehensive data base, including information on all provider encounters, is needed. This type of information will be invaluable to the employer deciding whether to sign with a PPO. Employers will also have to monitor very closely the performance of the PPO with which they have contracted.

Ermann, Dan. "Preferred Provider Organizations: What Are They?" Consultant (forthcoming 1987). Intramural.

The health care sector has changed dramatically in recent years. Simultaneously, business sector health care expenditures have risen rapidly during the past decade. As a result of this financial strain on business profits, businesses have modified their employee health care plans and become more active in controlling health expenditures. The most recent entrant into the health care arena receiving a lot of attention from the business sector is the preferred provider organization (PPO). This provider arrangement is viewed by many as a potential force for controlling health care cost inflation. This paper addresses three questions: (a) What is a PPO and how does it differ from other delivery forms? (b) What has been the growth pattern of PPOs? and (c) What are the future implications of this organizational form?

Freeborn, Donald K., et al. "Health Status, Socioeconomic Status, and Utilization of Outpatient Services for Members of a Prepaid Group Practice." Medical Care, Volume 15, Number 2, February 1977, pp. 115-128. Grant No. CH 00235.

When evaluating the effectiveness of medical care programs, one concern is whether receipt of care is based upon health care needs or upon socioeconomic status. This study describes the relation between health status and socioeconomic status and attempts to determine which has the greater effect on ambulatory care utilization.

The study setting was an operating HMO serving a cross-sectional membership of nearly 200,000 persons. Outpatient utilization data were derived from the medical records of a five percent sample of health plan members for 1969 and 1970. Social, economic, situational and attitudinal data were provided by 2,603 respondents in a household interview survey. Since a population's perceived health status may reflect health need, information from the survey provided measures of health status that ranged from specific

symptoms and complaints to a general measure of perceived health status.

Although the findings varied somewhat according to which variables were considered, they generally showed health status to correlate more highly than socioeconomic factors with the utilization of services in this medical care system. An exception was the use of preventive services, which was not significantly related to health status measures but rather, for women, to education and, to a lesser extent, income.

Gabel, Jon, and Dan Ermann. "Preferred Provider Organizations: Performance, Problems and Promise." Health Affairs, Volume 4, Number 1, Spring 1985, pp. 24-40. Intramural.

Few changes in the organization of health care have been received with greater enthusiasm than preferred provider organizations (PPOs). PPOs have been embraced as a market-oriented solution for controlling health care costs by a wide spectrum of groups with often conflicting interests. The present stage of PPO development can be described as "embryonic." With the exception of a few case studies, there is not empirical research that evaluates the ability of PPOs to control costs or assure access and quality of care. Little data are available about PPOs beyond their numbers, location and sponsors. Consequently, this paper relies on case studies, locational patterns and sponsorship information to address the following questions: (1) What is a PPO and how does it differ from other delivery systems? (2) How many PPOs are there and what is their rate of growth? (3) What types of markets do PPOs enter and who are their sponsors? (4) What are the forces fostering PPO growth? (5) What do available case studies suggest about the ability of PPOs to control costs and assure access and quality of care? In addressing these questions, the following caveats are noted: First, there is a greater diversity among PPOs. Brevity required focus on central tendencies of PPOs rather than their variations. Second, PPOs are in a state of rapid transition. A survey of PPOs in 1983 may not accurately portray the PPO industry of 1984 which in turn may differ from the industry of tomorrow.

Gabel, Jon, Dan Ermann, Thomas Rice and Greg deLissovoy. "PPOs: Their Emergence and Future." Journal of Health Politics, Policy and Law. Summer 1986 (in press). Intramural.

Through an examination of the first comprehensive national survey of Preferred Provider Organizations (PPOs), this paper attempts to illustrate how PPOs will be organized in the future. Likely changes in the PPO industry suggested by the analysis include: a) PPOs and their sponsors will increasingly underwrite the risk for excessive use of services; b) PPOs will continue to adopt payment mechanisms such as DRGs that partially transfer the risk of excessive use of services to the hospital; c) as the PPO movement increasingly becomes an insurer-based movement, improved management information systems will enable PPOs to become more selective in their contracting with hospitals, and to a lesser extent,

physicians; d) the expanded role of insurers will additionally yield an enlarged role in claims processing; and e) PPOs will penetrate the medium and small employer market where employers do not self-insure, because PPOs and their sponsor organization will increasingly bear the risk for excessive use of services. Events beyond the control of PPOs, such as provider excess capacity and HMO growth, may determine the size and composition of the PPO sector.

LoGerfo, James P., et al. "Rates of Surgical Care in Prepaid Group Practices and the Independent Setting." Medical Care, Volume 17, Number 1, January 1979, pp. 1-10. Grant No. HS 00694.

The Seattle Prepaid Health Care Evaluation Project is a comparative study designed to assess the care received by persons enrolled in either a large prepaid group practice (PGP) or in a prepaid, independent practice setting in which physicians are reimbursed on a fee-for-service basis (IPP). As part of the study, the patterns of surgical care for hysterectomy, cholecystectomy, appendectomy, and tonsillectomy/adenoidectomy are assessed. Overall there were 215 such procedures with an exposure adjusted rate being five times higher in the IPP than in the PGP. After eliminating 43 percent of procedures in the IPP and 22 percent in the PGP which did not meet specified criteria for either necessary, appropriate or justifiable surgery, the exposure-adjusted rate differential was 3.9 times higher in the IPP with the difference in the rates being mainly attributable to hysterectomy and tonsillectomy/adenoidectomy.

There were more unnecessary procedures in the IPP, but the fact that a significant difference in the incidence of surgery persisted even after elimination of such cases suggests that the differences in rates of surgery between the IPP and PGP cannot be solely attributed to a higher rate of inappropriate surgery in the IPP.

Perkoff, Gerald T., et al. "The Effects of an Experimental Prepaid Group Practice on Medical Care Utilization and Cost." Medical Care, Volume 14, Number 5, May 1976, pp. 432-449. Grant No. HS 00074.

Rates of utilization and costs of medical care by a study group in a prepaid group practice, the Medical Care Group of Washington University (MCG), were compared prospectively over a three-year period with those of a demonstrably similar control group cared for by fee-for-service private physicians.

MCG enrollees used twice the ambulatory services control enrollees did ($p = < 0.01$), but used 23 percent fewer hospital days ($p = < 0.01$). Cost per diagnostic and therapeutic visit was similar for both groups; MCG preventive visits cost more. Increased numbers for MCG services provided led to increased ambulatory care costs for MCG over controls. Hospital utilization savings did not compensate for these increased costs.

Thus prepayment in an organized setting did change hospital and ambulatory care utilization but did not reduce medical care

costs. Other changes in medical care besides those which result from a different organization of medical care are discussed which might make control of medical care costs more likely.

Rice, Thomas, Greg deLissovoy, Jon Gabel and Dan Ermann. "The State of PPOs: Results from a National Survey." Health Affairs, Volume 4, Number 4, Winter 1985, pp. 25-40. Intramural.

This article reviews the findings of a telephone survey of executives in over 140 PPOs. Questions dealt with history of the PPO, number and types of provider contracts, provider selection and reimbursement, utilization review, number of employer contracts and consumer incentives, market penetration, and demographic characteristics of eligible consumers. The findings suggest that this organizational form of health care is growing quickly--between late 1984 and mid-1985, the number of people eligible to use PPOs increased fourfold, to more than 5.7 million who were eligible. Utilization review is used almost universally, with concurrent and preadmission review of hospital stays the norm. Retrospective claims review is commonly employed and PPOs are profiling the service provision patterns of member physicians. PPOs are providing industry with competitive leverage, forcing health care providers to be more cost conscious by accepting predetermined, discounted fees and undergoing external review of the appropriateness of the care provided. However, PPOs do not appear to be highly selective in their choice of member physicians and hospitals--the selection does not seem to be based on the history of the provider in terms of keeping utilization rates low and containing costs. The PPOs likely to succeed will be those that have a strong incentive to keep aggregate health care costs down and that can exercise some muscle over providers.

Shortell, S., et al. "Diversification of Health Care Services: The Effects of Ownership, Environment, and Strategy." Advances in Health Economics and Health Services Research, L. Rossiter and R. Schechter (eds.), JAI Press (forthcoming 1987). Grant No. HS 05159.

This paper develops and tests a model of factors associated with the provision of diversified services by selected multihospital systems and market area comparison hospitals. In addition to the number and type of services offered, data were collected on the provision of charity care and the profitability of each service. The model suggests that diversification is largely a function of environmental factors, hospital ownership, system affiliation, and hospital market strategies. Analysis indicates that the trend toward greater diversification of hospital services is likely to be most strongly influenced by state Medicaid policies and certain hospital characteristics. Growth in the number of inpatient services provided and a more severe casemix are likely to be involved with greater service diversification. Affiliation with a not-for-profit hospital system is likely to be associated with more diversified hospital services, but not affiliation with an investor-owned system. Underlying hospital strategies have relatively little influence on diversification at present. A

stronger association between strategies and diversification in the future is expected as a result of cost containment and competitive pressures.

Welch, W. P. "Regression Toward the Mean in Medical Care Costs: Implications for Biased Selection in Health Maintenance Organizations." Medical Care, Volume 23, Number 11, November 1985, pp. 1234-1241. Grant No. HS 04969.

As more Americans choose among insurance plans, the possibility of biased selection increased in importance. Although regression toward the mean is recognized as a common problem in evaluating social programs, it has generally been ignored in studies of biased selection. Suppose that people are included in a group simply because they had expenditures in one year $100 below the mean; that is, health status or other risk factors are not part of the selection criteria. Empirically, the expected difference in the following year is about $20 and appears to fall in each subsequent year. This pattern holds for the elderly and nonelderly. Evidence of lower pre-enrollment expenditure of prepaid group practice (PGP) enrollees can be interpreted in several ways. Under one interpretation, PGP enrollees are assumed to be a random sample conditional on pre-enrollment expenditure, such that biased selection is one-fifth of estimates based on 1 year of data and one-half of estimates based on 4 years of data. This article cannot resolve the issue of alternative interpretations; it only raises it.

Welch, W. P. "Health Care Utilization in HMOs: Results from Two National Samples." Journal of Health Economics, Volume 4, Number 4, December 1985, pp. 293-308. Grant No. HS 04969.

HMOs have been endorsed as a means of containing medical care costs. This study is the first use of a national data set to analyze whether HMOs have lower utilization. Regression and logit analyses are used to control for demographic and health status variables. The point estimates confirm that HMOs cut hospital days relative to conventional insurance (e.g., Blue Cross), but imprecision is a serious problem.

Welch, W. P., and Richard G. Frank. "The Predictors of HMO Enrollee Populations: Results from a National Sample." Inquiry, Volume 23, Number 1, Spring 1986, pp. 16-22. Grant No. HS 04969.

This study is the first to use a national data set to analyze the kinds of people who enroll in HMOs versus conventional insurance, whether or not they faced a choice. The explanatory variables include two measures of health: reported health status and number of medical conditions. Although neither variable proved to be significant, coefficient estimates suggest that ill health increases the probability of being enrolled in an HMO, as does larger family size. The income elasticity of HMO enrollment is -.64, which suggests that families of modest means are a natural clientele of HMOs.

Welch, W. P. "The Elasticity of Demand for Health Maintenance Organizations." The Journal of Human Resources, Volume 21, Number 2, Spring 1986, pp. 252-266. Grant No. HS 05133.

This paper analyzes a national sample of firms where employees faced a choice between a Health Maintenance Organization (HMO) and a conventional insurer such as Blue Cross. A regression analysis is specified as a partial adjustment model and a logit functional form. The long-run price elasticity of demand for HMOs is estimated to be -0.6. To the extent that employers pass on increases in the total premium, the price elasticities facing insurers are higher. Furthermore, the demand for HMOs is a negative function of the copayment charged by the HMO for an office visit.

Wersinger, Richard, et al. "Inpatient Hospital Utilization in Three Prepaid Comprehensive Health Care Plans Compared with a Regular Blue Cross Plan." Medical Care, Volume 14, Number 9, September 1976, pp. 721-732. Grant No. HS 00467.

The evidence is substantial that comprehensive, HMO-type prepayment plans can significantly reduce hospitalization rates. Yet it remains unclear which factors contribute to this phenomenon. This study focuses on organizational characteristics of four plans with different hospitalization experiences. Regular medical staff review and frequent use of second opinions and economies of scale by providing care at one well-equipped, large health center appear to have the largest impact. However, such organizational advantages can easily be wiped out by adverse self-selection of patients during open-enrollment periods. Evidence of selection based on predictable high obstetrical and newborn care costs is presented.

HOSPITAL ECONOMICS

- o Rural Hospitals
- o Reimbursement
- o Facility Planning
- o Market Structure/Competition
- o Cost Analysis
- o Casemix Measurement

Anderson, Ronald, et al. "The Effect of Measurement Error on Differences in Hospital Expenditures." Medical Care, Volume 14, Number 11, November 1976, pp. 932-949. Contract No. HRA 106-74-24.

Differences in expenditures for medical care among various subgroups in the population according to age, income, residence, and ethnicity have important public policy implications. However, few efforts have been made to assess the extent to which these apparent differences among subgroups observed in social surveys may be influenced by measurement error. This paper provides a framework for examining the impact of various kinds of error including random error and biases. The framework is applied to data on hospital expenditures from a national survey of health services expenditure which includes in addition to consumer reports, verifying information from hospitals, physicians, and third-party payers who provided services to persons in the sample. Differential error according to demographic and social characteristics is estimated. The impact of such differential error on conclusions about the distribution of health resources is discussed.

Boaz, Rachel F. "Utilization Review and Containment of Hospital Utilization--Some Implications of Providing Care in the 'Most Appropriate Setting.'" Medical Care, Volume 17, Number 4, April 1979, pp. 315--330. Intramural.

The study examines the potential for savings in the use of hospital resources if utilization review policies succeed in curtailing excessive use of hospital facilities. Excessive use is defined as the utilization of hospital care when ambulatory care is medically feasible and acceptable. A utilization review policy would be expected to counteract the tendency to substitute inpatient for outpatient treatment by assuring that all patients with identical medical problems and demographic traits would be treated in an identical least cost setting regardless of their social and economic circumstances. It might, thus, ascertain that the use of hospital facilities would not be systematically affected by patients' non-medical or socioeconomic characteristics. Specifically, the study distinguishes between two types of utilization control policies, pre-admission certification and concurrent or continuing-stay review of hospital episodes, and asks how each can contain excessive utilization. It concludes that continuing-stay review is not likely to have any appreciable effect on shortening hospital episodes because the effect of nonmedical factors on extended stays are small and concentrated among patients whose diagnoses might not qualify them for hospitalization under a pre-admission screen. However, pre-admission certification has a considerable potential for containment of hospital utilization through the reduction in the number of admissions. Also, as a corollary, the study shows that utilization review policies should not be evaluated, as they often are, in terms of their effect on length-of-stay, but rather in terms of their effects on hospital admissions and case mix.

Christianson, Jon B., and Lee Faulkner. "The Contribution of Rural Hospitals to Local Economies." Inquiry, Volume 18, Spring 1981, pp. 46-60. Grant No. HS 03374.

Despite the shaky financial condition of many rural hospitals, their operation results in substantial economic contributions to the incomes of the communities they serve. A study of rural hospitals in eight western states shows that total community income stimulated directly and indirectly by hospital spending averages around $700,000, and could reach as high as $1 million annually depending on the analysis unit used. Average annual salary income generated by rural hospitals in the study sample is about $600,000. All in all, hospitals contribute more in salaries to rural communities than many other sectors of rural economies. These findings are significant in light of the wide range of problems plaguing rural hospitals and forcing the closure of many. The relative importance of hospitals to rural economies is one factor, largely overlooked by policymakers, that should be considered in deciding the fate of financially ailing facilities in rural areas.

Copeland, Ronald, and Phillip Jacobs. "Cost of Capital, Target Rate of Return, and Investment Decision." Health Services Research, Volume 16, Number 3, Fall 1981, pp. 335-341. Intramural.

Recent attempts to develop an investment decision criterion for nonprofit hospitals that follows the for-profit criteria have resulted in little agreement. Terminological considerations are much to blame for this lack of consensus among researchers in the field. Attempts have been made to identify a "cost of capital" for nonprofit institutions, and to employ this concept in a manner similar to the way it is employed in a for-profit setting. In fact, the application of this concept to nonprofit institutions has resulted in confusion. The use of "target rate of return" in its place would orient the debate more properly toward institutional ends and the means required to achieve them.

Cohen, Morris A., et al. "Analysis of Capacity Decisions for Progressive Patient Care Hospital Facilities." Health Services Research, Volume 15, Number 2, Summer 1980, pp. 145-160. Grant No. HS 03543.

This study provides a methodology for investigating the relationships between capacity decisions and selected performance measures for a progressive patient care facility. The methodology is illustrated with published data from a coronary care facility. The facility is modeled using a simulation approach. The utilization rate of each unit, the fraction of transfers blocked in each unit, and the proportion of each unit's patient-days resulting from inappropriate use are determined for a range of capacity levels. Finally, the results of this experimentation are transformed by regression analysis into prediction equations that give insight into the sensitivity of these performance measures to

capacity levels and provide a useful tool for guiding resource allocation decisions.

Finch, Larry E., and Jon B. Christianson. "Rural Hospital Costs: An Analysis with Policy Implications." Public Health Reports, Volume 96, Number 5, September-October 1981, pp. 423-433. Grant No. HS 03374.

The 1977 National Guidelines for Health Planning suggest a maximum of 4 hospital beds per 1,000 population and a minimum occupancy rate of 80 percent for those beds as desirable for an efficient local hospital system. Rural areas often have more than 4 hospital beds per 1,000 population and generally exhibit occupancy rates well below the rate specified by the Guidelines. Hence, there appears to be an opportunity for reducing the cost of hospital services in rural areas by providing care with fewer beds concentrated in larger, better utilized facilities.

This paper presents estimates of the annual savings that would result from following such a policy in rural areas. The statistically estimated cost curves are based on data from a sample of 116 rural hospitals for the years 1971-77. With a quadratic specification for the cost function, the hospital size that minimizes average costs is estimated to be 113 beds, and the occupancy rate that minimizes costs is 73 percent. Hospitals with 113 beds are estimated to have average costs per patient day that are from $6.51 (logarithmic specification) to $15.15 (quadratic specification) below the average cost per patient day of a 41-bed hospital, the average size of the hospitals in the sample. Hospitals with a 73 percent occupancy rate are estimated to have average costs that are $5.96 logarithmic specification to $11.75 (quadratic specification) lower than the average costs in hospitals with 51 percent occupancy rates, the average in the sample, if other factors are held constant. These benefits can be weighed by health policy analysts against the increased cost of travel and ambulance service, and the accompanying increase in risk to patients, to determine if the present structure for the delivery of acute care in rural areas warrants change.

Fleming, Steven T., Edward J. Kobrinski and Michael J. Long. "A Multidimensional Analysis of the Impact of High-Cost Hospitalization." Inquiry, Volume 22, Summer 1985, pp. 178-187. Contract No. 233-81-3032.

In this update of a study of high-cost illness, data on 1,455,766 discharges from 167 short-term general hospitals that participated in the Professional Activity Study of the Commission on Professional and Hospital Activities are analyzed. Results suggest that high-cost hospitalization can be characterized broadly by two groups: the single costly hospital episode and the multiple-admission pattern. A theoretical framework is proposed to analyze high-cost hospitalization in terms of three dimensions: the magnitude of expenditures, the scope of high-cost illness within the cohort, and the scale of high-cost hospitalization within the population at large.

Freund, Deborah, et al. "Analysis of Length-of-Stay Differences Between Investor-Owned and Voluntary Hospitals." Inquiry, Volume 22, Number 1, Spring 1985, pp. 33-44. Grant No. HS 04175.

In contrast to assertions that investor-owned (I-O) hospitals are more efficient that voluntary hospitals, this study finds no significant difference between I-Os and voluntaries where the efficiency measure is length of hospitalization (LOH). The data base used is a national probability sample of hospitals and patients. The analysis accounts for variation in LOH by controlling for hospital characteristics other than ownership, and in particular it utilizes a new case-mix index to control for the case-mix portion of heretofore suggested differences.

Goldfarb, Marsha G., et al. "Behavior of the Multiproduct Firm: A Model of the Nonprofit Hospital System." Medical Care, Volume 18, Number 2, February 1980, pp. 185-201. Intramural.

This article presents a hospital model that recognizes the multiproduct nature of hospital output and incorporates trade-offs among various competing goals. A utility function for the hospital is defined over quantity, quality and the net revenues associated with the treatments produced. Utility is constrained by epidemiological factors and by availability of beds. The model is used to draw comparative statics implications, from which economic hypotheses are developed and tested. This is accomplished by a set of equations that predict variations in patient-mix, diagnosis-specific lengths of stay, admissions, expenses per admission, and occupancy rates. Empirical results are generally consistent with predictions. The model has a variety of policy applications, and these are illustrated.

Goldfarb, Marsha G., and Rosanna M. Coffey. "Casemix Differences Between Teaching and Nonteaching Hospitals." Inquiry (forthcoming). Intramural.

This paper addresses two issues: 1) the degree to which patients admitted by teaching hospitals are more severely ill than patients admitted by nonteaching hospitals, and 2) the degree to which these relative severities are sensitive to the casemix measurement metric chosen. These issues are addressed by comparing the casemix of teaching and nonteaching hospitals both with respect to DRGs (which combine medical problems with treatment decisions) and to Disease Staging (which defines casemix by underlying medical condition only). Teaching and nonteaching hospitals are contrasted along several different dimensions of casemix, as well as various measures of treatment intensity and outcomes. The empirical work analyzes 1977 patient data for 351 hospitals, 211 of which are nonteaching. The 144 teaching hospitals are divided into three categories: those with minimal residency programs, those with larger programs, and major teaching hospitals which are closely tied to medical schools.

The major conclusion is that teaching hospitals have a more serious casemix than nonteaching hospitals only when DRGs are the basis of the classification system and the use of resources is a prominent feature of the weighting system. But when the classification system used is Disease Staging or the weights are not directly based on resource consumption, the casemixes of teaching and nonteaching hospitals are not significantly different from one another. The only exception to the latter generalization is that medical school-based hospitals admit greater proportions of patients in diagnoses that are likely to be fatal.

The results also indicate that compared to strictly nonteaching hospitals, the presence of any teaching program consistently raises length of stay, the use of surgery, the number of procedures, and the relative values scores of procedures, even after casemix differences are controlled. More sophisticated teaching programs are not associated with higher surgery or procedure rates than smaller teaching programs. The paper concludes with a discussion of policy implications and caveats.

Coffey, Rosanna M., and Marsha G. Goldfarb. "DRGs and Disease Staging for Reimbursing Medicare Patients." Medical Care, Volume 24, Number 9, September 1986, pp. 814-829. Intramural.

Beginning October 1, 1983, Medicare began reimbursing many hospitals on the basis of a set of fixed fees tied to Diagnosis Related Groups (DRGs). Using 1979-1981 Maryland data for Medicare patients, this paper compares the DRG system with the Disease Staging patient classification system in terms of 1) structure, 2) explanation of resource consumption (length of stay) of hospital patients, and 3) impact on reimbursement by type of hospital. The two systems are conceptually and empirically different in classifying patients. Further, Disease Staging and DRGs perform nearly the same in explaining length-of-stay variation among Maryland patients. However, the two systems generate substantially different reimbursements by type of hospital. Surprisingly, large hospitals (including urban, not-for-profit, teaching hospitals) fare better under a DRG-based reimbursement system than under Disease Staging, a severity-of-illness system that excludes procedures as a basis of classification. These results imply that reimbursement policy based on Disease Staging would create disincentives to perform surgery compared to the current DRGs.

Gonnella, Joseph S., Mark C. Hornbrook and Daniel Z. Louis. "Staging of Disease: A Case-Mix Measurement." The Journal of the American Medical Association, Volume 251, Number 5, February 3, 1984, pp. 637-644. Intramural.

Measurement of illness severity is required to evaluate diagnostic efficiency of physicians, assess quality of care, understand utilization of health services, design clinical trials, and reimburse hospitals on the basis of output. Staging is one method for measuring the severity of specific diseases. Staging defines discrete points in the course of individual diseases that are

clinically detectable, reflect severity in terms of risk of death or residual impairment, and possess clinical significance for prognosis and choice of therapeutic modality. Medical staging criteria have been developed for 420 diagnoses and converted into "coded" criteria for the major diagnostic coding systems. Coded criteria can be efficiently applied to computerized hospital discharge abstracts to derive a comprehensive case-mix classification system. Uses of staging in epidemiologic, case-mix, and utilization analyses are illustrated for diabetes mellitus.

Greenberg, James, and Roger Kropf. "A Case-Mix Method for Developing Health Planning Criteria for Hospital Services." Medical Care, Volume 19, Number 11, November 1981, pp. 1083-1094. Grant No. HS 03538.

The principal concern of this article is the inadequacy of the planning criteria currently being used by existing federally funded health planning agencies. A case-mix method was created for developing appropriate criteria. Chart-abstract data from New Jersey were used to create a list of those diagnoses eligible for treatment in the cardiac care unit (CCU), select a sample of hospitals for study and analyze the relationship between CCU bed need and CCU clinical practice. It was shown that existing bed-need criteria for CCU planning represent current CCU clinical practice patterns, which are probably not cost effective. The method was also used to develop empirical values of these criteria, which do represent cost-effective practice. It is recommended that the method be used to strengthen and update continuously all hospital-service need criteria used in current planning activities, including Plan Development and Certificate of Need Review.

Griffith, John R., et al. "Forecasting Bed Needs and Recommending Facilities Plans for Community Hospitals: A Review of Past Performance." Medical Care, Volume 17, Number 3, March 1979, pp. 441-460. Grant No. HS 00228.

A university-based hospital consulting group reviewed six studies of Michigan hospitals retrospectively in 1975. The studies represented all those done between 1967 and 1971 requiring forecasts of acute bed supply and service needs. The original studies developed forecasts using empirical studies of patient origin and rigorously prepared authoritative forecasts of county populations. The 1975 review compared forecasts of population, service population, and bed need against current values and also interviewed clients to assess retrospective satisfaction with the recommendations. Although the consultants strove steadily to minimize the bed supply and base population forecasts were accurate, the studies overestimated bed needs. Further, the clients were often dissatisfied with the original recommendations, and frequently acted to exceed them. Comparing the 1975 actual with what would now be recommended by the consultant indicates that the "error" cost the communities about $50 per person per year.

Hancock, Walton M., et al. "Parameters Affecting Hospital Occupancy and Implications for Facility Sizing." Health Services Research, Volume 13, Number 3, Fall 1978, pp. 276-289. Grant No. HS 00228.

Simulation is used to investigate the effects on hospital occupancy of the number of beds in the facility, the percentage of patients who are emergencies, the percentage of elective patients who are scheduled, and the average lengths of stay of emergency and elective patients. A practical method is presented for estimating the optimum size of a short-term hospital on the basis of expected demand, and use of the results in planning is discussed.

Hellinger, Fred J. "Recent Evidence on Case-Based Systems for Setting Hospital Rates." Inquiry, Volume 22, Number 1, Spring 1985, pp. 78-91. Intramural.

Medicare's adoption of the Prospective Payment System (PPS) was the culmination of years of research and demonstrations to establish case-based systems for setting hospital rates. This paper examines the procedures and findings of the early programs in New Jersey and Maryland, as well as the Medicare case-based system that was established pursuant to the experience in these two states. This is followed by an examination of the recently established Medicaid case-based systems in Utah, Pennsylvania, Ohio, Michigan, and Washington and the case-based systems established by some Blue Cross and Blue Shield Plans. The strengths and weaknesses of these systems are discussed, and suggestions are made for improving the evaluations of these systems.

Hellinger, Fred J. "Reimbursement Under DRGs: The Medicaid Experience." Health Care Financing Review, Winter 1987 (forthcoming). Intramural.

The implementation of Medicare's DRG-based rate setting system (the Prospective Payment System or PPS) sparked the growth of Medicaid DRG-based systems. Eight State Medicaid agencies now employ a DRG-based system, and another four State Medicaid agencies are planning to implement DRG-based systems in the near future. This paper examines the eight State Medicaid DRG-based payment systems in existence in 1986. Preliminary evidence presented in this paper indicates that Medicaid DRG-based systems have experienced reduced rates of increase in expenditures for hospital services, and that hospital admission rates have not increased under these systems.

Hornbrook, Mark C. "Hospital Case Mix: Its Definition, Measurement and Use: Part I, The Conceptual Framework." Medical Care Review, Volume 39, Number 1, Spring 1982, pp. 1-43. Intramural.

This study presents a conceptual framework for hospital case mix measurement. Various purposes requiring case-mix measures are highlighted, including those related to policy, administration and research. Definitions are provided of six performance criteria for a case-mix measure--reliability, validity, sensitivity, cost-effectiveness, flexibility and acceptability. Hospital output

measurement is addressed in the context of economic theory, where three primary requirements for a valid measure include: What is the relevant firm? Whose preferences count? and, What is the nature of the product? An analysis is presented of the measurement problem posed by production of multiple outputs. In addition, the concept of a diagnosis is defined and the complexities of disease classification are illustrated. Shortcomings of classifying patients according to their diagnoses are enumerated. Approaches to the development of overarching dimensions of disease are reviewed. Guidelines for designing appropriate case-mix measures for policy, administrative, and research purposes are derived. Problems of perverse incentives, secondary effects, and biases which arise because of divergence from the ideal measure are discussed. The last section discusses future research needs.

Hornbrook, Mark C. "Hospital Case Mix: Its Definition, Measurement and Use: Part II, Review of Alternative Measures." Medical Care Review, Volume 39, Number 2, Summer 1982, pp. 73-123. Intramural.

This study reviews existing case-mix measures and evaluates them with criteria developed in an earlier publication. Seven diagnosis classification systems are discussed; these provide alternative methods of designing and classifying the multiple types of cases treated by the hospital. Single dimensional measures are described; these measures are created by a weighted aggregation of individual cases. The applicability of each measure to the three measurement objectives also are considered: 1) reimbursing the hospital; 2) monitoring the quality of care; and 3) estimating aggregate cost functions. Finally, the state-of-the-art in case-mix measurement is summarized and future directions in case-mix measurement are outlined.

Hornbrook, Mark C., et al. "Patterns of Obstetrical Care in Hospitals." Medical Care, Volume 19, Number 1, January 1981, pp. 55-67. Intramural.

This article examines the determinants of length of stay and ancillary service use for a single diagnostic category: normal delivery. Data for a systematic sample of 945 obstetrical admissions to 48 New England hospitals during 1969-70 are used to estimate a simultaneous equations model. The exogenous variables include socioeconomic and medical characteristics of the mother, medical condition of the newborn, type of labor and delivery, and hospital and physician characteristics.

The important findings are threefold: First, evidence is found supportive of a simultaneous relationship between length of stay and ancillary services for normal deliveries. Second, the results show the importance of controlling for the performance of surgery, the presence of complications, the length of labor and the death of the baby in analyzing obstetrical utilization patterns. Third, holding maternal medical and socioeconomic factors constant, hospital size, teaching status, control and location, as well as physician mode of practice and relationship to the hospital, are

important determinants of hospital use. It is concluded that the diagnostic-specific approach to utilization analysis is appropriate and useful. Only within such a narrowed focus can researchers disentangle the confounding effects of the attributes of the disease itself from the impact of hospital and physician characteristics on hospital use.

Hornbrook, Mark C., and John A. Rafferty. "The Economics of Hospital Reimbursement." Advances in Health Economics and Health Services Research, Volume 3, 1982, pp. 79-115. Intramural.

This paper presents a theoretical model of the hospital that is used to examine probable institutional responses to various modes of reimbursement. The analysis indicates that the use of a one-dimensional incentive is likely to have limited effectiveness in the complex hospital environment where the preferences of decisionmakers often diverge from those of policymakers. It further indicates that no single reimbursement system is optimal and that supplementary programs are necessary to make any reimbursement system effective and devoid of undesired side effects. With respect to systems using fixed payments per admission, based on diagnosis, the analysis suggests it is necessary to monitor both case mix and quality of care quite closely. The paper also notes that HMO-type capitation is the only reimbursement method that provides direct incentives to the physician to conserve on the use of hospital services, although it also has potentially negative implications for quality of care. In general, the authors express little optimism for the effectiveness of incentive reimbursement in the absence of supplementary support activities.

Hornbrook, Mark C., and Alan C. Monheit. "The Contribution of Case-Mix Severity to the Hospital Cost-Output Relation." Inquiry, Volume 22, Number 3, Fall 1985, pp. 259-271. Intramural.

This study examines the bias arising from use of either single-dimensional output volume, such as admissions or patient-days, or structural hospital capacity, such as bedsize or scope of services, to assess hospital output in analyses of the cost-output relation. Omission of diagnostic case mix from such a relation has significant implications for public policy because of the observed negative relationship between admission volume and case-mix severity. Hospitals with higher admission rates tend to admit less severe case mixes, other things the same, so that specialized facilities are relatively underutilized. This finding provides a rationale for regionalization and sharing of costly specialized services, and for reimbursement controls on the cost of capital. Public policy should focus on optimizing mix or treatment services rather than hospital size per se.

Kominski, Gerald, F., et al. "Unrecognized Redistributions of Revenue in Diagnosis-Related Group Based Prospective Payment Systems." Health Care Financing Review, November 1984 (Annual Supplement), pp. 57-69. Grant No. HS 04916.

The Medicare prospective payment system, which is based on the diagnosis-related group patient-classification system, identifies previously unrecognized redistributions of revenue among diagnosis-related groups and hospitals. The redistributions are caused by two artifacts. One artifact results from the use of labor market indexes to adjust costs for the different prices paid by hospitals in different labor markets. The other artifact results from the use of averages that are based on the number of hospitals, not the number of patients, to calculate payment rates from average costs. The effects of these artifacts in a sample data set have been measured, and it was concluded that they lead to discrepancies between costs and payments that may affect hospital incentives--the overall payment for each diagnosis-related group--and Medicare's total payment.

Lave, Judith R., and Samuel Leinhardt. "The Cost and Length of Hospital Stay." Inquiry, Volume 13, December 1976, pp. 327-343. Grant No. HS 01516.

Factors affecting the average daily costs and length of stay of patients with relatively common diagnoses in a large urban teaching hospital are examined. Case-mix factors are principal contributors to cost variability among hospitals and among patients.

Lipscomb, Joseph, Ira E. Raskin and Joseph Eichenholz. "The Use of Marginal Cost Estimates in Hospital Cost-Containment Policy." Zubkoff, Raskin and Hanft (eds.), Hospital Cost Containment: Selected Notes for Future Policy, Prodist, 1978, pp. 514-537. Intramural.

Analysis of the role of marginal hospital costs in Phase IV of the Economic Stabilization Program is provided. Several methodological issues are reviewed. Future policies should reflect the fact that a significant portion of hospital costs does not vary in the short-term with volume.

Luft, Harold S., and Susan C. Maerki. "Competitive Potential of Hospitals and Their Neighbors." Contemporary Policy Issues, Volume III, Winter 1984-85, pp. 89-102. Grant No. HS 04329.

Despite many proposals to encourage health-care competition, some underlying assumptions about providers--both physicians and hospitals--have not been examined. This paper attempts to measure the potential for hospital competition by asking a very simple question: What proportion of United States hospitals have neighboring hospitals within reasonable commuting distance?

Distances between short-term general hospitals can be calculated by using geographic coordinates for their addresses. According to data from 48 states and 6,520 hospitals, 47 percent of hospitals have no neighbors within 5 miles, and 77 percent have fewer than five neighbors within 5 miles. At a 15-mile radius, the numbers drop to 23 percent and 62 percent respectively.

These results imply that the potential for competitive hospital markets might not exist in large portions of the country. National strategies are likely to be most effective in the few dense hospital markets located primarily in the Northeast and Pacific states.

Luft, Harold S., and Sandra S. Hunt. "Evaluating Individual Hospital Quality Through Outcome Status." The Journal of the American Medical Association, Volume 255, Number 20, May 23/30, 1986, pp. 2780-2784. Grant No. HS 04329.

Case abstract data are routinely collected by hospital abstracting services, peer review organizations, and some state agencies. These data have proved invaluable in the analysis of patterns of performance across large numbers of hospitals and have shown, for example, the inverse relation between diagnosis- or procedure-specific volume and outcome. Routinely collected data also appear to be an attractive means for identifying hospitals, and perhaps physicians, with particularly good or poor outcomes for their patients. Unfortunately, problems of small numbers of patients and relatively low rates of poor outcomes make it difficult to be confident in the identification of individual performers. Recent data for cardiac catheterization patients are used to illustrate this problem.

Luft, Harold S., et al. "The Role of Specialized Clinical Services in Competition Among Hospitals." Inquiry, Volume 23, Number 1, Spring 1986, pp. 83-94. Grant No. HS 04329.

Because duplication of services among hospitals can be costly, it is important to understand the circumstances under which duplication occurs among hospitals within a region. In this sample of 3,584 community hospitals surveyed in 1972, an analysis is made of the impact of competition on the availability of specialized clinical services, with special focus on mammography, emergency services, cobalt therapy, heart surgery, and cardiac catheterization. The presence of nearby institutions and services is shown to increase the availability of most of these services in neighboring hospitals. This supports the hypothesis that competition among hospitals within an open-ended reimbursement environment takes the form of nonprice competition for community-based physicians through the acquisition of expensive clinical facilities.

Maerki, Susan C., Harold S. Luft, and Sandra S. Hunt. "Selecting Categories of Patients for Regionalization: Implications of the Relationship Between Volume and Outcome." Medical Care, Volume 24, Number 2, February 1986, pp. 148-158. Grant No. HS 04329.

A growing number of researchers have demonstrated an inverse relation between the number of patients treated with specific diagnoses or procedures in a hospital and subsequent adverse outcomes. Such findings support the notion that policies should be explored to concentrate patients in selected hospitals to reduce

preventable patient mortality or morbidity. The authors used data from 15 diagnoses and procedures demonstrating an inverse relation between volume and mortality to explore the different implications of regionalization policies across categories of patients. In some instances, concentrating patients in hospitals with high volumes of such patients could avert more than 60% of all deaths. For some procedures or diagnoses, however, such mortality savings are either medically infeasible because of the emergency nature of the problem or logistically impossible because of the extent of regionalization implied.

McClain, John O. "A Model for Regional Obstetric Bed Planning." Health Services Research, Volume 13, Number 4, Winter 1978, pp. 378-394. Grant No. HS 02024.

Utilization of obstetric beds is often inefficient because of the randomness inherent in the occurrence of births. In an effort to increase efficiency, obstetric units admit certain types of nonobstetric patients when beds are available. However, legal and practical restrictions on such admissions make it difficult to estimate the potential increase in efficiency. A stochastic model was developed to forecast the allocation of nonobstetric patient days to the OB unit and to predict the effect of such allocations on demand for obstetric beds as well as beds in other units of the hospital. The model was tested with data from six hospitals, and its possible use in decisions on the merger of units and decertification of beds was explored.

Morrisey, Michael A., et al. "Hospital Rate Review: A Theory and an Empirical Review." Journal of Health Economics, Volume 3, 1984, pp. 25-47. Grant No. HS 04472.

This paper presents a theory of the effects of rate review on hospital operations and organization. Its purpose is to explain the way in which hospitals have responded to regulation. In the development of this theory, the hospital product was viewed as a bundle of services, rate review was looked upon as the ceiling on the value of the bundle. The ceiling creates an incentive to remove elements from the bundle, i.e., to reduce "quality" when quality is variable, the effect on utilization becomes indeterminate. The model argues, among other things, that the hospital will change its service complement and its contractual arrangements with physicians and other hospitals. An extension of the organizational theory literature leads to implications concerning the ordering of hospital responses to regulation. The growing body of empirical literature on the effects of hospital rate review is used as an initial test of the major thrusts of the theory. A suggested agenda for further empirical work is presented.

Morrisey, Michael A., and Frank A. Sloan. "Hospital Philanthropy in the Future." Business and Health, June 1986, pp. 11-14. Grant No. HS 05176.

A review of the literature on charitable giving and an examination of the determinants of hospital philanthropy suggest more giving to hospitals, but not nearly enough to offset significant reductions in the availability of tax-exempt bond financing and in public subsidies of hospital care. Overall health care costs should increase less rapidly as most hospitals slow the rate of acquisition of new costly technology because of the increased cost of capital. Innovation in the hospital industry may be reduced, however, and access of the public to the latest health care technology may diminish.

Neumann, Bruce R., and Joyce V. Kelly. "The Three Components of a Prospective Capital Reimbursement System." Health Care Financial Management, Volume 14, Number 7, July 1984, pp. 92-100. Intramural.

This article presents a prospective capital reimbursement system (PCRS) that is compatible with Medicare's Prospective Payment System (PPS) and promotes hospital efficiency and access. The PCRS consists of three components:

1. a physical capital allowance which pays each hospital a proportion (about 4 percent) of its total DRG-determined revenue;

2. a financial capital allowance which pays each hospital a return (about 6 percent) on its financial capital invested in existing net fixed assets; and

3. a transitional (3 to 5 years) capital fund for distribution by regional or state agencies.

Physical capital is treated consistently with the treatment of operating costs under PPS, by simply adding a capital allowance to total DRG-based revenue. Financial capital is treated independently--all financial capital costs are recognized, not just debt. Finally, a capital fund is established to address severe access and quality problems during a 3 to 5 year period. By blending three allowances, this system is more comprehensive than other proposals.

Pauly, Mark V., and Peter Wilson. "Hospital Output Forecasts and the Cost of Empty Hospital Beds." Health Services Research, Volume 21, Number 3, August 1986, pp. 403-428. Grant No. HS 04618.

This article investigates the cost incurred when hospitals have different levels of beds to treat a given number of patients. The cost of hospital care is affected by both the forecasted level of admissions and the actual number of admissions. When the relationship between forecasted and actual admissions is held constant, it is found that an empty hospital bed at a typical hospital in Michigan has a relatively low cost, about 13 percent or less of the cost of an occupied bed. However, empty beds in large hospitals do add significantly to cost. If hospital beds are closed, whether by closing beds at hospitals which remain in

business or by closing entire hospitals, cost savings are estimated to be small.

Perrin, James M., Joseph Valvona and Frank A. Sloan. "Changing Patterns of Hospitalization for Children Requiring Surgery." Pediatrics, Volume 77, Number 4, April 1986, pp. 587-592. Grant No. HS 04762.

Increasing health care costs have directed public attention to changing rates of hospital care. We examined changes in hospitalization and surgical rates for children during the decade from 1972 to 1981. Total hospitalizations for children younger than 15 years of age increased by only 4% during the decade. For teenagers and young adults (ages 15 to 24 years), hospitalizations declined by 19%. Admissions for surgery declined more for the younger group than for the older one. For children younger than 15 years of age, inpatient tonsillectomies and adenoidectomies (T and A) decreased 43%, representing 58% of the total decline in surgical procedures for this age group. Teaching hospitals continued to provide a sizable proportion of all childhood surgeries and increased their share of both high- and low-technology procedures during the decade. Payment sources varied among procedures. Self-pay varied from a low of 1.6% for T and A to 13.5% for spina bifida. Private insurance or Blue Cross payment varied from 59% for congenital heart disease surgery to 84% for T and A. These data on payments suggest that some children may lack access to some surgical care. Furthermore, insofar as the bulk of payment is from nonfederal sources, changes in hospitalization for surgical procedures will likely come mainly from changing incentives in the private sector.

Robinson, James C., and Harold S. Luft. "The Impact of Hospital Market Structure on Patient Volume, Average Length of Stay, and the Cost of Care." Journal of Health Economics, Volume 4, Number 4, December 1985, pp. 333-356. Grant No. HS 04329.

A variety of recent proposals rely heavily on market forces as a means of controlling hospital cost inflation. Skeptics argue, however, that increased competition might lead to cost-increasing acquisitions of specialized clinical services and other forms of non-price competition as means of attracting physicians and patients. Using data from hospitals in 1972, an analysis is made of the impact of market structure on average hospital costs measured in terms of both cost per 5 patients and cost per patient day. Under the retrospective reimbursement system in place at the time, hospitals in more competitive environments exhibited significantly higher costs of production than did those in less competitive environments.

Rupp, Agnes, Donald M. Steinwachs and David S. Salkever. "The Effect of Hospital Payment Methods on the Pattern and Cost of Mental Health Care." Hospital and Community Psychiatry, Volume 35, Number 5, May 1984, pp. 456-459. Grant No. HS 03831.

The authors report on a study of the impact of a prospective payment method on hospital charges and mix of services provided to a group of Medicare patients treated for mental disorders in general acute care hospitals in Maryland. The study focused on per case reimbursement, under which hospitals are guaranteed a level of total revenue based on the number and case mix of discharges, and examined its effect on hospital charges during an index admission and on hospital and nonhospital charges over a three-month period following the index admission. The results suggest that per case reimbursement provides incentives to reduce the cost of one hospital stay, but this cost reduction is possibly offset by a higher readmission rate or by higher readmission charges. The authors conclude that the impact of the per case payment method on the total cost of mental health care over a specific period of time is insignificant, but that the payment method may influence the pattern of care.

Salkever, David S., and Thomas W. Bice. "The Impact of Certificate-of-Need Controls on Hospital Investment." Milbank Memorial Fund Quarterly/Health and Society, Volume 54, Number 2, Spring 1976, pp. 185-214. Contract No. HRA 106-74-57.

Certificate-of-Need (CON) controls over hospital investment have been enacted by a number of states in recent years and the National Health Planning and Resources Development Act of 1974 provides strong incentives for adoption of CON in additional states. In this study, the questions that have been raised about the effectiveness of CON controls are reviewed. Quantitative estimates of the impact of CON on investment are developed. These estimates show that CON did not reduce the total dollar volume of investment but altered its composition, retarding expansion in bed supplies but increasing investment in new services and equipment. This finding may be due to (1) the emphasis in CON laws and programs on controlling bed supplies and (2) a substitution of new services and equipment for additional beds in response to financial factors and organizational pressures for expansion. Finally, the paper cautions against the conclusion that CON controls should be broadened and tightened because of the practical difficulties involved in reviewing and certifying large numbers of small investment projects.

Salkever, David S. "Cost Implications of Hospital Unionization: A Behavioral Analysis." Health Services Research, Volume 19, Number 5, December 1984, pp. 639-664. Grant No. HS 03016.

The growth of unionization among hospital workers was sharply accelerated by the 1974 amendments to the National Labor Relations Act covering voluntary hospital workers. With continuing inflationary pressures in the hospital sector, the cost implications of the recent and projected growth of hospital unions is of some concern to policymakers. This article presents estimates of union cost impacts based on data from hospitals in Maryland, Massachusetts, New York, and Pennsylvania. Cross-sectional regressions with data for 1975 yield positive union

impacts of 3.3 percent of total costs, 4.1-5.9 percent on cost per case, and 6.1 percent on cost per day. Reestimation of the model with data on changes over the 1971-1975 period yields similar results. The cost impact of unionization varies with the pattern of coverage (being lower for service employees and RNs) and with the extent of cost-based reimbursement. This suggests that future cost impacts of union growth may be moderated as prospective payment systems for hospitals become more widespread.

Salkever, David S., Donald M. Steinwachs and Agnes Rupp. "Hospital Cost and Efficiency Under Per Service and Per Case Payment in Maryland: A Tale of the Carrot and the Stick." Inquiry, Volume 23, Number 1, Spring 1986, pp. 56-66. Grant No. HS 03831.

The simultaneous operation of per case and per service payment systems in Maryland, and the varying levels of stringency used in setting per case rates, allows a comparison of the effects of differing incentive structures on hospital costs. This paper presents such a comparison with 1977-1982 data. Regressions performed on cost-per-case and total cost data indicate that costs were lower only when per case payment limits were very stringent. Positive net revenue incentives appeared to be insufficient to induce a reduction in length of stay or ancillary services use. These changes in medical practice patterns thus appear more likely under the threat of financial losses--that is, under the threat of the stick rather than the inducement of the carrot.

Schweitzer, Stuart O., and John Rafferty. "Variations in Hospital Product: A Comparative Analysis of Proprietary and Voluntary Hospitals." Inquiry, Volume 13, June 1976, pp. 158-166. Intramural.

Proprietary hospitals tend to specialize in the least capital-intensive cases. They provide longer stays on a case-specific basis than do voluntary hospitals and provide a larger volume of laboratory and X-ray services. Proprietaries tend to use a larger amount of inputs (days of stay and diagnostic services) than non-teaching voluntaries; this may indicate technical inefficiency or greater responsiveness to the demand for amenities.

Scott, W. Richard, et al. "Organizational Determinants of Services, Quality and Cost of Care in Hospitals." Milbank Memorial Fund Quarterly/Health and Society, Volume 57, Number 2, Spring 1979, pp. 234-264. Contract No. HRA 230-75-0169.

Characteristics of hospitals may be useful predictors of the economy, efficiency, and effectiveness of services delivered. But it is difficult to explain the variables of cost and quality among hospitals until differences among patients and outcomes are accounted for. A promising new research approach is explored as a source of information on that most elusive of all measures in service organizations--the outcome experienced by clients.

Shonick, William, and Ruth Roemer. "Private Management of Public Hospitals: The California Experience." Journal of Public Health Policy,

Volume 3, Number 2, June 1982, pp. 182-204. Grant No. HS 02015.

This article analyzes the experience of county hospitals in California with private management contracts. The problems of county hospitals that led to such contracts are reviewed. Evidence on short-term experience with private management of public hospitals is mixed. Not enough savings have been generated to alleviate the initial problem of fiscal duress in public hospitals.

Shortell, Stephen M., and Thomas E. Getzen. "Measuring Hospital Medical Staff Organizational Structure." Health Services Research, Volume 14, Number 2, Summer 1979, pp. 97-110. Grant No. HS 01978.

Based on organization theory and the work of Roemer and Friedman, seven dimensions of hospital medical staff organization structure are proposed and examined. The data are based on a 1973 nationwide survey of hospital medical staffs conducted by the American Hospital Association. Factor analysis yielded six relatively independent dimensions supporting a multidimensional view of medical staff organization structure. The six dimensions include 1) Resource Capability, 2) Generalist Physician Contractual Orientation, 3) Communication/Control, 4) Local Staff Orientation, 5) Participation in Decision Making, and 6) Hospital-Based Physician Contractual Orientation. It is suggested that these dimensions can be used to develop an empirical typology of hospital medical staff organization structure and to investigate the relationship between medical staff organization and public policy issues related to cost containment and quality assurance.

Sloan, Frank A., and Edmund R. Becker. "Cross-Subsidies and Payment for Hospital Care." Journal of Health Politics, Policy and Law, Volume 8, Number 4, Winter 1984, pp. 660-685. Grant No. HS 04665.

This study uses hospital data from the 1979 American Hospital Association Reimbursement Survey in a multivariate framework to assess the impact of discounts and third-party reimbursement of hospital costs and profitability. Three central issues are addressed: (1) Is a different payment justified for Medicare, Medicaid, and/or Blue Cross on the basis of differential costs? (2) Have the cost-containment efforts of the dominant payers reduced total payments to hospitals? and (3) What part of the overall savings in payments to hospitals is in the form of reduced costs rather than reduced profits? On the basis of the evidence in this study, we find (1) that the differential payment is not justified; (2) that the cost-containment efforts of the dominant payers have reduced total payments to hospitals somewhat, but a substantial amount of cost-shifting remains; and (3) that the savings is in profits, rather than in costs.

Sloan, Frank A., James M. Perrin and Joseph Valvona. "The Teaching Hospital's Growing Surgical Caseload." The Journal of the American Medical Association, Volume 254, Number 3, July 19, 1985, pp. 376-382. Grant No. HS 04762.

A competitive marketplace potentially creates new pressures for teaching hospitals. To assess possible trends in teaching hospitals' caseloads, we studied surgical utilization in 1972 and 1982 using two national data sets. The percentage of total patients hospitalized for surgery increased in teaching hospitals between 1972 and 1981. Nonteaching hospitals adopted several new procedures, such as hip athroplasty. However, increased volume attributable to the spread of procedures to additional hospitals was small when compared with volume increases experienced by hospitals that performed these procedures in 1972. Teaching hospitals' caseloads grew for well-established surgical procedures such as cholecystectomy, delivery, and mastectomy and for newer, high-technology procedures such as hip athroplasty and coronary artery surgery. Overall surgical case complexity was relatively high in teaching hospitals in 1972, and the disparity with nonteaching hospitals increased during the decade. Distribution of surgical patients by payment source varied appreciably among surgical procedures, but not among hospitals by teaching status. Teaching hospitals were successful in attracting patients from 1972 to 1981; however, several new pressures are emerging that should be watched.

Sloan, Frank A., James M. Perrin and Joseph Valvona. "In-Hospital Mortality of Surgical Patients: Is There an Empiric Basis for Standard Setting?" Surgery, Volume 99, Number 4, April 1986, pp. 446-453. Grant No. HS 04762.

Several public and private groups have set minimum procedure-specific volume standards. Such standards reflect concerns about hospital quality and cost. In-hospital mortality rates are often taken as one measure of quality. To learn about variations in in-hospital mortality rates, we analyzed data on patients who underwent any of seven surgical procedures from a national cohort of 521 hospitals observed continuously between 1972 and 1981. On the average, mortality rates fell as the number of procedures performed annually at the hospital rose. Volumes at which mortality rates reached minimum levels were far higher than actual volumes achieved by the vast majority of hospitals. However, knowledge of hospital volumes left the major part of variation among hospitals' procedure-specific mortality rates unexplained. Many hospitals with low volumes of certain procedures had no associated deaths. Hospitals experienced appreciable year-to-year variation in mortality even though mortality rates fell with the number of years the procedure was performed at the hospital. Correlations among mortality rates for the procedures were low, suggesting that variation in rates is procedure rather than hospital specific. State rate-setting programs had no effect on mortality rates associated with the procedures analyzed. For several reasons, we conclude that an adequate statistical basis for setting minimum volume standards does not presently exist.

Sloan, Frank., and Joseph Valvona. "Why Has Hospital Length of Stay Declined? An Evaluation of Alternative Theories." Social Science Medicine, Volume 22, Number 1, 1986, pp. 63-73. Grant No. HS 04762.

This study evaluates the importance of several potential determinants of observed decreases in hospital stays for patients undergoing each of 11 surgical procedures using a panel of 521 hospitals covering 1971-1981. Observed decreases in stays for these patients were substantial. If anything, the complexity of cases treated rose and, for this reason, stays should have risen. Neither state prospective payment nor Professional Standards Review Organization programs reduced stays and may have increased them. Competitive influences had no effect. Changes in payer mix and hospital ownership were too small to have had an impact. Evidently the decreases were mainly due to improvements in surgical technique and other changes in medical practice. Several implications for Medicare's new payment system are discussed.

Soumerai, Stephen B., and Jerry Avorn. "Efficacy and Cost-Containment in Hospital Pharmacotherapy: State of the Art and Future Directions." Milbank Memorial Fund Quarterly/Health and Society, Volume 62, Number 3, Summer 1984, pp. 447-470. Grant No. HS 03880.

Inappropriate drug therapy decisions in hospitals are a major source of morbidity and unnecessary cost. Strategies aimed at merely improving knowledge are relatively ineffective in changing prescribing behavior of physicians. Other suggested interventions are not documented by well-controlled studies. More personal, salient, and continuing approaches are promising, but will require careful evaluation of costs and quality-of-care outcomes.

Traxler, Herbert, and Thomas Dunaye. "Emerging Patterns and Policy Implications of Transitional Care." Health Affairs, 1987 (forthcoming). Intramural.

This paper explores recent developments in institutional transitional care services (such as post-acute convalescence, rehabilitation, and psychiatric care), their implications for the health care market and policies, and researchable issues for further study. Between 1983 and 1985, hospital inpatient days and occupancy rates decreased at an annual rate of eight percent, the average length-of-stay fell by half a day, and total annual admissions dropped by one million, as many procedures and services were shifted from the acute care to alternative settings. At the same time, hospitals have been expanding into the provision of non-acute services, which are being set up as distinct parts within acute care facilities or under separate institutional structures or arrangements. Recent surveys of hospital managers indicate that the shift from "routine" acute care to specialized services and programs is likely to continue. This shift includes the formalization of new arrangements with, or the outright purchase of, nursing homes or home health care agencies, and the diversification into market areas that presently are exempt from prospective reimbursement under Medicare, such as rehabilitation or psychiatric care.

Wallen, Jacqueline. "Resource Use by Psychiatric Patients in Community Hospitals: The Influence of Illness Severity, Physician Specialty, and Presence of a Psychiatric Unit." Advances in Health Economics and Health Services Research, McGuire and Scheffler (eds.), JAI Press (forthcoming). Intramural.

Using linked hospital, community, patient, and physician data, this paper attempts to explain resource use differences between psychiatric patients in hospitals with and without psychiatric units. The study explores the relative effects of illness severity, physician specialty, and presence of a psychiatric unit on length of stay, controlling for other factors that might also affect length of stay (e.g., patient DRG, community resources, other hospital characteristics). Presence of a psychiatric unit is found to increase resource use, as measured by length of stay, even when physician specialty and illness severity, as well as other hospital, patient, and community characteristics are taken into account. Being under the care of a psychiatrist also results in longer hospital stays for psychiatric patients, but the effects of physician specialty on length of stay are not as great as those of presence of a psychiatric unit. The effect of illness severity on length of stay, when other patient, hospital, physician and community characteristics are taken into account, is relatively slight.

Wheeler, J.R.C., et al. "The Effects of Burn Severity and Institutional Differences on the Costs of Care." Medical Care, Volume 21, Number 12, December 1983, pp. 1192-1203. Grant No. HS 03261.

Burn care treatment is among the costliest yet least studied forms of care. This paper presents estimates of the magnitude and components of burn care costs. It analyzes the extent to which burn care costs is determined by severity of burns or by characteristics of the institution in which the patient is treated, based on patient-specific data from eight hospitals representing different levels of technical sophistication in the delivery of burn care. Costs of care are higher in specialized facilities. Many patients with small burns are treated in specialized facilities at much higher costs than patients treated in general care facilities. Among specialized facilities, patient severity accounts for a portion of the variance in costs, but significant cost differences remain after adjusting for severity. These results suggest that cost-control efforts should concentrate on specifying criteria for admission to specialized burn facilities, regional coordination of facilities and institutions, and improved facilities' design and management.

Williams, Sankey V., et al. "Improved Cost Allocation in Case-Mix Accounting." Medical Care, Volume 20, Number 5, May 1982, pp. 450-459. Grant No. HS 02577.

Traditionally, many hospital costs have been allocated to patients using indirect measures that do not always reflect the value of the resources used to provide care. When, for example, costs are

allocated by multiplying the patient's charges by the hospital's ratio of costs to charges, the allocated cost does not reflect actual cost because the hospital does not uniformly charge for services in proportion to their cost. The choice of method for cost allocation will be as important for the newly developed case-mix cost-accounting systems as it has been for traditional cost-accounting systems. To illustrate how the use of an indirect cost-allocation method might affect the output of a case-mix cost-accounting system, operating room, radiology and clinical laboratory costs were assigned to 106 hospitalized inguinal hernia patients in two diagnosis-related groups (DRGs) using both the hospital's existing cost-allocation method and a method that measures costs directly. Total costs and the costs in each department were significantly lower in each DRG using the direct method. It was concluded that patients in these two DRGs were being assigned more than the actual cost of their care with the existing cost-allocation method and, therefore, that the existing method prevented the case-mix accounting system from providing accurate management information.

INCOME AND HEALTH

- o Demand for Services
- o Indigent Care
- o Access

Andersen, Ronald, et al. "Rates and Correlates of Expenditure Increases for Personal Health Services: Pre- and Post-Medicare and Medicaid." Inquiry, Volume 13, June 1976, pp. 136-144. Contract No. HSM 110-70-392.

This study examines the contributions of price and use to health expenditure increases over the 1953-1970 time period, using data from a series of household interview surveys and controlling for age, sex, income, race, residence groups and source of payment.

Berk, Marc L., Amy B. Bernstein and Amy K. Taylor. "The Use and Availability of Medical Care in Health Manpower Shortage Areas." Inquiry, Volume 20, Number 4, Winter 1983, pp. 369-380. Intramural.

This paper examines access to care and utilization of health services in federally designated Health Manpower Shortage Areas (HMSAs), using data from NMCES. The results confirm that residents of shortage areas experience some deprivations in access to care and use of services. Further analysis, however, indicates that shortage area designation has little relationship to indicators of access and use. Factors such as income and health insurance coverage appear to be more closely associated with access and use than is an area's designation as an HMSA.

Berki, S. E., and B. Kobashigawa. "Socioeconomic and Need Determinants of Ambulatory Care Use: Path Analysis of the 1970 Health Interview Survey Data." Medical Care, Volume 14, Number 5, May 1976, pp. 405-421. Grant No. OEO-51517-E-73, NCHSR administered.

Path analysis is applied to a subsample of the 1970 National Health Interview Survey data to identify the direct and indirect effects of major socioeconomic determinants of ambulatory care utilization. The recursive model of ten equations is predicated on the notion that the dominant determinant is need, measured as activity limitation caused by chronic conditions and restricted activity days. Age, sex, income, education and other variables are seen both as direct determinants and as acting through their effects on morbidity. The results demonstrate a complex set of relationships among the variables not identifiable in less complex analyses. Both income and education are shown to have pervasive effects. The measure of chronic disability is shown not only to affect utilization directly but to have an even larger indirect effect through its association with increased incidence of acute conditions.

Boaz, Rachel F. "Paying for Medical Care: The Burden on the Disabled." Medical Care, Volume 16, Number 9, September 1978, pp. 705-722. Intramural.

The study measures the economic vulnerability of disabled persons whose impaired health interfered with their earning ability. This population segment, about one sixth of the total population, represents the extreme both in terms of sensitivity to health problems and losses in economic power. The major findings are

given in a nutshell. 1) Inadequate income did not bar the disabled individuals from contact with the medical care system except in the case of the weakest among the weak, the aging women without husbands. This finding suggests that the restraining effect of income can become strong enough to overcome the concerns with ill-health, although the inhibiting effect of economic constraints weakens when the concerns with health problems intensifies. 2) Once contact with the health care system had been established, there was no evidence to suggest that lack of means to pay for medical services had restricted the quantity of services rendered to the disabled, although inability to pay might have affected the setting in which care was provided. 3) The needed medical care was obtained at a considerable financial sacrifice. As Table 6 shows, the level of direct out-of-pocket payments imposed a heavy burden on low and moderate income households, and this burden eased gradually as household income-levels increased.

Coffey, Rosanna M. "The Effect of Time Price on the Demand for Medical Care Services." Journal of Human Resources, Volume 18, Number 3, Summer 1983, pp. 409-424. Intramural.

This paper analyses the effect of time price on medical-care demand and describes use of a reservation-wage question from a household survey to develop a measure of time price of obtaining medical care. A comprehensive three-equation model of the demand for female medical-care services examines choice of provider, entry demand, and the demand for physician visits. Results show that provider choice is based primarily on economic factors and that an expected high time price discourages women from choosing a public provider and from seeking gynecological, maternal-health, or family-planning services during the year, yet does not influence the number of visits made once care is used. The estimated model shows that medical-care demand equations should control for the type of provider chosen and the opportunity cost of time for alternative activities when testing for a negative time price effect of obtaining medical care.

Conrad, Douglas A. "Dental Care Demand: Age-Specific Estimates for the Population 65 Years of Age and Over." Health Care Financing Review, Volume 4, Number 4, Summer 1983, pp. 47-57. Grant No. HS 03772.

This paper derives estimates of the demand for dental care among the U.S. population 65 years of age and over. The analysis is unique in that it focuses on a segment of the population with particular relevance to future policy regarding dental insurance coverage and distinguishes determinants of dental care demand by type of service. The empirical estimates suggest that the use of dental service by elderly persons does respond to price changes and that price-elasticity of demand varies significantly among different dental procedures.

Edwards, Linda N., and Michael Grossman. "Income and Race Differences in Children's Health in the Mid-1960s." Medical Care, Volume 20, Number 9, September 1982, pp. 915-930. Grant No. HS 02917.

This article explores income and race differences in eight measures of the health of children ages 6 through 11 as assessed in the early 1960s. It is shown that both income and race differences in health are much less pronounced than they are in infant mortality and birth weight data. Significant differences are found in the health status of black and white children and of children from high- and low-income families, but these are primarily differences with respect to parent-reported (rather than physician-reported) health criteria and they by no means overwhelmingly favor the white or high-income children. These findings underscore the importance of treating children's health status as multidimensional. In addition, these findings will serve as a bench mark for studies of children's health using data for a more recent period.

Ginsburg, Paul B., and Frank A Sloan. "Hospital Cost Shifting." The New England Journal of Medicine, Volume 310, Number 14, April 5, 1984, pp. 893-898. Grant No. HS 04665.

This paper reviews policy options to deal with cost shifting or payment differentials in hospitals. These options include grants to hospitals for bad debts/charity, all-payer hospital rate setting and antitrust exemption for collective negotiation by commercial insurers with hospitals. The fundamental policy issue of determining how to pay for the health care of indigent patients is discussed.

Hadley, Jack, and Anthony Osei. "Does Income Affect Mortality? An Analysis of the Effects of Different Types of Income on Age/Sex/Race-Specific Mortality Rates in the United States." Medical Care, Volume 20, Number 9, September 1982, pp. 901-914. Grant No. HS 02790.

This article explores the question of whether or not higher incomes are associated with lower mortality rates. Some recent research on this issue has suggested that income either has no effect on or may even be positively correlated with mortality rates. By contrast, earlier studies consistently found a negative relationship--higher income (or economic status) was generally associated with lower mortality rates. This paper extends the prior research in two significant ways. First, the issue is analyzed separately for eight adult and four infant age/sex/race-specific population cohorts. Second, total family income is broken down into several components to investigate whether different types of income have differential effects on mortality rates. In addition, the problem of untangling the joint effects of education and income on mortality also is explored. The results tend to support the hypothesis that higher income is associated with lower mortality rates. However, the magnitude of the impact of income is small, although it is consistently larger for infants than for adults.

Holtman, A. G., and E. Odgers Olsen, Jr. "The Demand for Dental Care: A Study of Consumption and Household Production." Journal of Human Resources, Volume 11, Number 4, Fall 1976, pp. 546-550. Grant No. HS 01165.

Within the context of a Becker-type consumer's choice model, this paper reports an empirical study of the demand for dental care for approximately 1,000 households. The unique feature of the study is that waiting time and travel time as well as price and other traditional economic variables are entered into the regression analysis. Generally, the results confirm our expectations derived from theory, but elasticities with respect to all of the above-mentioned determinants of demand were small. In addition, some of the subtle predictions of the theory could not be confirmed.

Miners, Laurence A., et al. "Demand for Medical Care in Rural Settings: Racial Comparisons." Health Services Research, Volume 13, Number 3, Fall 1978, pp. 261-275. Grant No. HS 02417.

Household data from a southern rural community are used to examine racial differences in the utilization of medical care services, and both monetary and nonmonetary determinants of demand are considered. Regression analysis results indicate that office waiting time (for black households) and travel time to the provider (for both black and white households) have a greater impact on demand than price. Racial differences exist in the effects of health insurance coverage and household income on household medical visit expenditures, and both need and household size are found to be consequential determinants of demand.

Newacheck, Paul W., et al. "Income and Illness." Medical Care, Volume 18, Number 12, December 1980, pp. 1165-1176. Grant No. HS 02975.

Little research has been directed toward an examination of the health needs of low-income Americans in relation to major governmental medical care programs designed originally to narrow the health gap between "poor" and "nonpoor." Analysis of unpublished data from the 1977 Health Interview Survey of the National Center for Health Statistics shows that about 75 percent of the gap in restricted activity days and bed disability days--two common measures of the impact of ill-health--between "poor" and "nonpoor" populations is attributable to greater prevalence and severity of activity-limiting chronic conditions among low-income people. Although both income groups report similar types of chronic conditions resulting in activity limitation, the prevalence of all major chronic conditions is greater in the low-income population. Approximately 25 percent of the low-income population bears the burden of these conditions; the majority of the "poor" report disability day levels similar to the "nonpoor." The substantial impact of chronic conditions should be an important consideration in meeting the health needs of the low-income population. Current government programs, such as Medicare and Medicaid, however, are designed primarily to pay for acute care received in hospitals and in physicians' offices.

Rossiter, Louis F., and Gail R. Wilensky. "A Reexamination of the Use of Physician Services: The Role of Physician-Initiated Demand." Inquiry, Volume 20, Number 2, Summer 1983, pp. 162-172. Intramural.

Variations in the demand for ambulatory care are explained in terms of whether they derive from the patient or the physician. The analysis is based on NMCES data which indicate whether a visit to a physician was initiated by the patient or the physician. Differences in education affect only patient-initiated and not physician-initiated demand. Both patient-initiated and physician-initiated demand are influenced by variations in waiting time, various measures of health status, sex and racial/ethnic background. The physician is the sole source of differences in utilization given differences in out-of-pocket expenses and the physician-to-population ratio. The role of the physician is found to be primarily motivated by medical rather than financial concerns.

Sloan, Frank A. "Access to Medical Care and the Local Supply of Physicians." Medical Care, Volume 15, Number 4, April 1977. Grant No. HS 00825.

This paper focuses on one aspect of access to physicians' services, the time patients spend obtaining physicians' services. Patient time is divided into travel and waiting time components. Communities in which the patient's total time commitment tend to be the highest are generally the most populous cities. Pairwise comparisions between central cities and non-central cities in the 22 largest Standard Metropolitan Statistical Areas (SMSAs) reveal that patient time is higher in central cities in the vast majority of cases. Although the area physician-population ratio tends to have the anticipated negative impact on patient time, the ratio explains very little of the total intercommunity variation in the latter variable. Implications for physician manpower policy are discussed.

Sloan, Frank A., and Judith D. Bentkover. "Access to Ambulatory Care and the U.S. Economy." Lexington Books, 1979. Contract No. HRA 230-75-0218.

This study ascertains the impact of the 1974-1975 inflation and recession on access with focus on low income and minority groups. Literature on patient access to ambulatory care is reviewed and analyses of various time-series and cross-sectional data are undertaken. Evidence shows a definite link between the performance of the economy and patient access to physician services. The results, however, are not dramatic; inflation and unemployment in 1974-1975 did not mean a total reversal of the gains in access realized during the preceding decade.

Starfield, Barbara. "Family Income, Ill Health, and Medical Care of U.S. Children." Journal of Public Health Policy, Volume 3, Number 3, September 1982, pp. 244-259. Grant No. HS 01964.

This paper summarizes the nature of the link between poverty and ill health in childhood as reflected in current studies, examines the relationship between poverty and the receipt of medical care,

reviews the evidence that increased access to medical care reduces the disparity in health status between poor and non-poor children, and speculates on the possible effects on health of a reduction in funds for care of the poor.

Wilensky, Gail R., and Marc L. Berk. "Health Care, the Poor and the Role of Medicaid." Health Affairs, Fall 1982, pp. 93-100. Intramural.

This study examines the 35 million poor and the near poor persons in 1977, their insurance coverage, health status, and their use of medical services. About 5 million poor and near poor persons had no insurance whatever throughout the year. When health status is used as a control, the uninsured poor use far fewer medical services than do the poor who have Medicaid coverage. There were also large differences in out-of-pocket costs with the Medicaid population incurring lower expenses than those who lacked any health insurance in 1977.

INSURANCE/FINANCING

- o Insurance Industry
- o Coverage/Benefits
- o Medicare/Medicaid
- o Corporate Health Plans
- o Catastrophic Costs

Adamache, Killard W., and Frank A. Sloan. "Competition Between Non-Profit and For-Profit Health Insurers." Journal of Health Economics, Volume 2, 1983, pp. 225-243. Grant No. HS 04665.

This study investigates the effects of tax, regulatory and reimbursement policies and other factors exogenous to the health insurance market on the relative price (to commercial insurers) paid by Blue Cross for hospital care, their administrative expense and accounting profits, premiums, and ultimately Blue Cross market share. A simultaneous equation model to assess interrelationships among these variables is estimated.

Analysis indicates that premium tax advantages enjoyed by the Blues have virtually no effect on the Blue's premiums or their market shares. A Blue Cross plan's market share has a positive effect on the discount it obtains from hospitals as does coverage of Blue Shield charges by a state-mandated rate setting plan. An upper bound on the effect on the Blue Cross market share of covering Blue Cross under rate-setting but excluding the commercials from such coverage is seven percentage points. Tests for administrative slack in the operation of Blue Cross plans yield mixed results.

Aday, Lu Ann, and Ronald Andersen. "Insurance Coverage and Access: Implications for Health Policy." Health Services Research, Volume 13, Number 4, Winter 1978, pp. 369-377. Contract No. HRA 230-76-0096.

Data are presented from a recent survey of the United States population comparing the characteristics and levels of access to medical care of persons under 65 years who have group or individual private health insurance, public health insurance, or no third-party coverage. The uninsured group appeared to fall between the privately insured and publicly insured groups on measures of social and economic status. Persons with publicly subsidized forms of insurance coverage utilized services at the highest rates, and uninsured persons used them at the lowest rates. Neither of these groups was as satisfied with the convenience or the quality of the care it obtained as the privately insured group. Implications of these findings for national health insurance and other health policy initiatives are discussed.

Bailit, Howard, et al. "Controlling the Cost of Dental Care." American Journal of Public Health, Volume 69, Number 7, July 1979, pp. 699-703. Grant Nos. HS 01545 and HS 01824.

Methods for controlling dental care expenditures are taking on greater importance with the rapid increase in prepaid dental plans. The use of regulatory systems to monitor provider performance are necessary to prevent gross over-utilization but are unlikely to result in net savings of more than five percent of total gross premiums. Theoretically, prepaid group dental practice (PGDP) may reduce expenditures by changing the mix of services patients receive. The modest estimated savings and the small number of PGDPs presently in operation limit the importance of this alternative for the next five to ten years. If substantial

reductions in dental expenditures are to be obtained, it will be necessary to limit dental insurance plans to cover only those services which have demonstrated cost-effectiveness in improving health for the majority of people. The concept that richer benefit plans may have small marginal effects on improving oral health may not be easy for the public to accept but, until they do, expenditures for dental care will be difficult to control.

Berk, Marc L., and Amy K. Taylor. "Women and Divorce: Health Insurance Coverage, Utilization and Health Care Expenditures." American Journal of Public Health, Volume 74, Number 11, November 1984, pp. 1276-1278. Intramural.

Since most married women are covered through their husband's employment-related health insurance, divorce can put their coverage for health care in serious jeopardy. This may discourage divorced women from seeking necessary medical care or force them to incur heavy out-of-pocket expenses when services are obtained. In addition, many women may be forced to turn to public insurance programs such as Medicaid. The current analysis examines this problem using data from NMCES. The findings indicate that almost fourteen percent of divorced women age 35-64 lack insurance coverage compared to less than seven percent of their married counterparts. In addition, they are over five times more likely than married women to receive Medicaid support, with almost fifteen percent of divorced women reporting such assistance. The implications of this for utilization of health services and out-of-pocket expenditures are also examined.

Cafferata, Gail Lee. "Knowledge of Their Health Insurance Coverage by the Elderly." Medical Care, Volume 22, Number 9, September 1984, pp. 835-847. Intramural.

Current legislative proposals to increase competition among private insurers assume that people are or can be well informed about their insurance coverage. Evidence from NMCES shows that among the population 65 years and over knowledge about health insurance coverage is substantial but generally lower than in the population under 65. Multivariate analysis is used to identify factors associated with high and low levels of knowledge. Although correct knowledge of coverage of particular services is highly associated with current experience of health problems, with use of these health services, and with the cost of private insurance, overall knowledge is lowest among some groups at high risk of serious illness--in particular, the old old, nonwhites and persons enrolled in Medicare but without Medicaid or private insurance supplements.

Cafferata, Gail Lee. "Private Health Insurance of the Medicare Population and the Baucus Legislation." Medical Care, Volume 23, Number 9, September 1985, pp. 1086-1096. Intramural.

The appropriateness of the benefits associated with the private insurance coverage of the Medicare population has been the subject of considerable concern. Section 507 of the Social Security

Amendments of 1980, also known as the Baucus legislation, reflects public concerns about the level of benefits in relation to premiums, duplicative coverage, the complexity and difficulty of insurance terminology, and marketing abuses. Data from NMCES can provide useful baseline data on the distribution of Baucus-like plans. In 1977, private insurance held by the Medicare population was more likely to cover inpatient than outpatient services and to emphasize "first dollar" benefits for long-term care. Multivariate analyses show that the distribution of Baucus-like insurance policies is highly associated with health status, source of insurance, region and place of residence. The importance of state regulations, suggested in other research, may account for these patterns.

Conrad, Douglas, Peter Milgrom and Asuman Kiyak. "Insurance Plan Effects on Dental Provider Treatment Patterns for Elderly Patients." Medical Care, Volume 22, Number 5, May 1984, pp. 430-445. Grant No. HS 02179.

Three hundred forty six dentists, randomly selected from the population of Washington State Dental Association members, volunteered to participate in a controlled experiment of treatment planning for elderly patients. Experimental oral health problems were designed that conform to the prevailing actual distribution of dental and related systemic disease among the elderly population of the United States. Each volunteer dentist constructed two treatment plans for the presenting dental problem: 1) a treatment plan to optimize oral health, ignoring the hypothetical patient's financial status and insurance coverage; and 2) a treatment plan given the particular dental insurance plan and patient financial status incorporated in the case. Results suggest that increasingly comprehensive insurance coverage does not necessarily lead to uniform monotonic increases in total dental expenditures. Rather, the incremental substitution of different services for one another appears to be the dominant effect of increased coverage, with the singular exception of coverage for fixed prosfield experiment that was used to evaluate the impact of an organized volunteer-based emergency first-responder system in 36 rural, medically underserved communities in central Georgia. The system created an information network within communities, which allowed rapid contact with trained resident volunteers when emergencies occurred. The evaluation examined selected environmental variables related to creating an information network and their effect on the general public's willingness to use a first responder for medical emergencies. Measurements of community awareness and attitudes were made using a household telephone survey conducted immediately before project initiation, 3 months and 13 months after implementation. Willingness to use the system was greatest for individual respondents living in communities with less than 800 population and who were participants in the social network of the community. Implications for administering this type of project through statewide EMS systems are discussed.

Dolan, Andrew, and Ira Moscovice. "A Comparison of Hospital and State Agency Efficiency in Processing Medicaid Claims in Washington State." Health Services Research, Volume 15, Number 2, Summer 1980, pp. 93-104. Grant No. HS 01978.

The performance of the Washington State Medicaid agency in processing Medicaid claims was compared with that of hospital providers for one year. In-hospital processing time was approximately twice that of the Medicaid processing agency. In-agency processing time was found to be significantly related to the size and disposition of a claim, while in-hospital processing time showed a significant relation to hospital dependence on Medicaid reimbursement, the amount of the claim not allowed reimbursement by the Medicaid agency, hospital expense per admission, and the question whether the claim was submitted by the university hospitals. Lengthy turnaround time for Medicaid reimbursement of hospitals in Washington State was primarily related to hospital speed in submitting claims.

Eisenberg, John M., and Arnold J. Rosoff. "Physician Responsibility for the Cost of Unnecessary Medical Services." The New England Journal of Medicine, Volume 299, Number 2, July 13, 1978, pp. 76-80. Grant No. HS 02577.

Most diagnostic and therapeutic services are ordered by physicians, but physicians practicing under fee-for-service conditions have few incentives to contain the costs of medical care. Without such incentives, effective cost control through mechanisms such as Professional Standards Review Organizations have been disappointing. Several legal approaches might be used to increase physicians' responsibility for the cost of unnecessary services--expansion of tort law, implied contract, redesign of insurance mechanisms, equitable estoppel and informed consent. However, increasing physician responsibility will require uniform but flexible definitions of medical necessity, reliable means for predetermining the need for services and effective penalties or incentives. A peer-review system that would incorporate the sharing of financial risk among physician, hospital, insurer and patient in the fee-for-service sector is proposed.

Farley, Pamela J., and Gail R. Wilensky. "Private Health Insurance: What Benefits Do Employees and Their Families Have?" Health Affairs, Volume 2, Number 1, Spring 1983, pp. 92-101. Intramural.

This paper describes private insurance benefits for two major services, hospital and outpatient physician care, held in 1977 by the large segment of the non-aged population (137.6 million employees and their dependents) who were covered by an employment-related group plan. Most of them (over 70 percent) faced no deductible and no coinsurance for initial days of hospital care. Such comprehensive benefits were much less common for physician office visits. There were substantial regional differences in the pattern of hospital benefits, and their comprehensiveness was systematically related to the size of the insurance group.

Differences in benefits for physician visits were also observed for people who obtained their insurance from groups of different size, both with respect to having any coverage and the presence of cost-sharing. With respect to broad industry categories, age and race, there were not many substantial or consistent differences in hospital or physician office benefits.

Farley, Pamela J., and Gail R. Wilensky. "Options, Incentives, and Employment-Related Health Insurance Coverage." Advances in Health Economics and Health Services Research, Volume 4, R. Scheffler and L. Rossiter (eds.), Greenwich, Connecticut: JAI Press, 1983. Intramural.

This paper reports on the number of individuals who were offered a choice of insurance plans through employment-related groups in 1977, the kinds of choices that were available, and the options that employees selected. It describes the insurance coverage that was provided by employer groups, its cost, and the share of the expense that was paid by employees. The estimates confirm that there was generally little opportunity for individual choice in terms of employment-related health insurance. Only about 20 percent of employees were offered a choice of plans through their group. Where options were offered, the cost containment potential of making cheaper plans available to employers was at least partly subverted by employers who tended to pay a fixed share of the premium for any plan. Yet, a substantial demand for low-option plans was evidenced in the analysis.

Farley, Pamela J. "Who Are the Underinsured?" Milbank Memorial Fund Quarterly/Health and Society, Volume 63, Number 3, Summer 1985, pp. 476-503. Intramural.

The question "Who are the underinsured?" is both definitional as well as empirical. Both aspects are addressed in this paper, and the sensitivity of empirical estimates to alternative definitions of underinsurance is explored. Depending on the definition, from 8 percent to 26 percent of the privately insured population under 65 is underinsured, with an intermediate estimate of 13 percent. The proportion who are underinsured increases with the degree to which protection against the small possibility of having large uninsured expenses from an unusually costly illness is emphasized in the definition. From one-third to two-thirds of all nongroup enrollees are underinsured, although group enrollees, who constitute 90 percent of persons with private insurance, are a substantial majority of the underinsured.

That part of the population under 65 who have inadequate private insurance and no coverage from public programs is about equal to the 9 percent who are always uninsured. Taking into account those who are uninsured only for a period of time during the year, the total gap in coverage is not just the 9 percent of the population who never have insurance but rather about 27 percent of the population (50.7 million people rather than 17.1 million in 1977). The relative size of this gap ranges across population groups amounting to as much as 56 percent in poor and 42 percent in

low-income families. Inadequate private insurance is particularly important for those 55 and older; while more likely to be insured throughout the year than the rest of the population, they face the likelihood of higher medical expenditures at an age of reduced employment, lower rates of group enrollment and reduced income.

Farley, Pamela J., and Alan C. Monheit. "Selectivity in the Demand for Health Insurance and Health Care." Advances in Health Economics and Health Services Research, Volume 6, R. Scheffler and L. Rossiter (eds.), Greenwich, Connecticut: JAI Press, 1985. Intramural.

The existence and quantitative importance of biased selection in health insurance markets is an important concern to researchers and policymakers seeking to understand and control health care expenditures. Since most private health insurance in the United States is now obtained through single-option employment-related groups, the problem of biased selection may presently be of limited importance. However, market-oriented reforms of the health care system that recommend expansion of insurance options may potentially increase adverse risk selection. Also, even in the present insurance system, there is a possibility that adverse selection may bias estimates of the impact of health insurance on health expenditures and overstate the saving from a reduction in insurance benefits.

The study examines the bias attributable to adverse selection in ordinary least squares estimates of the effect of insurance upon medical care expenditures, and explores whether expenditures affect the level of insurance coverage. These results are compared to two-stage least squares estimates that are theoretically free of selection bias. The results do not support the hypothesis that biased selection is empirically important in the present health insurance system or that expanded options are likely to either increase selectivity or lead to reductions in insurance. Instead, the availability of options exacerbates the incentive from employer premium payments and tax policies to purchase comprehensive insurance. Attempting to reduce health expenditures by increasing the price of insurance or the availability of options is an inefficient way of achieving that objective.

Gabel, Jon R., and Alan C. Monheit. "Will Competition Plans Change Insurer-Provider Relationships?" Milbank Memorial Fund Quarterly/Health and Society, Volume 61, Number 4, Fall 1983, pp. 614-640. Intramural.

The Reagan administration's market-oriented proposals for financing health care services and controlling their costs include a belief that "competition" among insurers and providers will lead to a fundamental reorganization of the system. But the limited evidence to date suggests that it will take more than the stimulus of increased consumer cost-sharing and reduced tax subsidies to create "competitive" provider behavior. Patients and providers are likely to continue business as usual in the fee-for-service sector.

Garner, Dewey D., et al. "Factors Affecting Physician Participation in a State Medicaid Program." Medical Care, Volume 17, Number 1, January 1979, pp. 43-58. Grant No. HS 02199.

Critical to policy planning for a program of national health insurance or a National Health Service is an understanding of the strengths and weaknesses of current federally-supported health programs. One program which has been subjected to criticism is Medicaid. A major problem facing Medicaid is the high proportion of physicians who refuse to participate in the program, thus preventing the target population from obtaining access to medical care. A telephone survey was conducted to assess the attitudes and behavior of a stratified random sample of physicians regarding their participation in a Medicaid program. Physicians were asked to identify major advantages and disadvantages of the program to individual patients, to society and to their medical practice. Non-participants were asked to identify the major reasons why they did not participate in the program. Medical specialty was the only significant demographic determinant of participation. Inadequate reimbursement, excessive paperwork, patient abuses of the program and bureaucratic complexity were among the most prominent factors contributing to nonparticipation. Implications of these findings are discussed with respect to the role of primary care providers' perceptions in the planning of future national health programs.

Greenfield, Carol A., et al. "Use of Out-of-Plan Services by Medicare Members of HIP." Health Services Research, Volume 13, Number 3, Fall 1978, pp. 243-160. Grant No. HS 00472.

Use of out-of-plan services in 1972 by Medicare members of the Health Insurance Plan of Greater New York (HIP) is examined in terms of the demographic and enrollment characteristics of out-of-plan users, types of services received outside the plan and the relationship of out-of-plan to in-plan use. Users of services outside the plan tended to be more seriously ill and more frequently hospitalized than those receiving all of their services within the plan. The costs to the SSA of providing medical care to HIP enrollees are compared with analogous costs for non-HIP beneficiaries and the implications for the organization and financing of health services for the aged are discussed.

Grembowski, David, Douglas Conrad and Peter Milgrom. "Utilization of Dental Services in the United States and an Insured Population." American Journal of Public Health, Volume 75, Number 1, January 1985, pp. 87-89. Grant No. HS 03772.

Dental service utilization rates among 1.2 million Pennsylvania Blue Shield dental insureds are compared to rates in the U.S. population. Insurance appears to stimulate the utilization of dental services above national norms; children appear to be a major beneficiary of insurance's incentive effect on dental services use. The implications of these findings for health planners and dental insurance providers are discussed.

Havighurst, Clark C. "Controlling Health Care Costs: Strenghtening the Private Sector's Hand." Journal of Health Politics, Policy and Law, Volume 1, Number 4, Winter 1977, pp. 471-498. Grant No. HS 01539.

The Council on Wage and Price Stability recently has discovered evidence suggesting "an unacknowledged potential of the private sector to exert influence and control in the area of health care cost inflation." This article examines the limitations on private-sector cost-control efforts and suggests actions which would permit and encourage private decisionmakers to be more effective. In particular, private health insurers' potential role in cost control is explored, and some promising insurer strategies are adumbrated. Carefully designed coverage limitations and plan-initiated reviews to exclude nonessential care from coverage are suggested, together with wider use of fixed indemnity payments or negotiated fees and charges (instead of paying usual and customary rates or incurred costs). Among the steps needed to permit insurers to provide this added service to cost-conscious customers is enforcement of the antitrust laws to prevent doctors' organized resistance to unwanted measures. In general, it is argued that private-sector efforts are likely to be more effective than government-sponsored controls as well as more appropriate in a pluralistic society.

Havighurst, Clark C., and Glenn M. Hackbarth. "Private Cost Containment." The New England Journal of Medicine, Volume 300, Number 23, June 7, 1979, pp. 1298-1305. Grant No. HS 01539.

Physicians should recognize that a more competitive health-care market would provide the best defense against government regulation. Aside from group-practice health-maintenance organizations, the cost-containment steps that might be taken in such a market are not well understood. In particular, little attention has been paid to how private health insurers might redefine their coverage to limit the cost-increasing effects of third-party payment. Insurer-provider agreements negotiated in a competitive environment would seem to be especially promising. Competing insurance plans would be variously organized and operated according to provider and consumer preferences. Traditional doctor-patient relations as well as fee-for-service payment could be preserved. The antitrust laws, while curbing concerted effort to prevent change, should assure that physicians are not exploited by dominant buyers. Lucrative opportunities already exist for enterprising and efficient providers.

Horgan, Constance M. "The Demand for Ambulatory Mental Health Services from Specialty Providers." Health Services Research, Volume 21, Number 2, June 1986, Part II, pp. 291-319. Intramural.

A two-part model is used to examine the demand for ambulatory mental health services in the specialty sector. In the first equation, the probability of having a mental health visit is estimated. In the second part of the model, variations in levels of use expressed in terms of visits and expenditures are examined

in turn, with each of these equations conditional on positive utilization of mental health services. In the second part of the model, users are additionally grouped into those with and without out-of-pocket payment for services. This specification accounts for special characteristics regarding the utilization of ambulatory mental health services: (1) a large part of the population does not use these services; (2) of those who use services, the distribution of use is highly skewed; and (3) a large number of users have zero out-of-pocket expenditures. Cost-sharing does indeed matter in the demand for ambulatory mental health services from specialty providers; however, the decision to use mental health services is affected by the level of cost-sharing to a lesser degree than is the decision regarding the level of use of services. The results also show that price is only one of several important factors in determining the demand for services. The lack of significance of family income and of being female is notable. Evidence is presented for the existence of bandwagon effects. The importance of Medicaid in the probability of use equations is noted.

Lipson, David P., et al. "Capitation Payment for Medicaid Pharmacy Services: Impact on Non-Medicaid Prescriptions." Medical Care, Volume 19, Number 3, March 1981, pp. 342-353. Grant No. HS 03930.

Although pharmacy organizations have been instrumental in the movement to repeal antisubstitution laws, there is evidence that under the current fee-for-service system pharmacists have not exercised their newly obtained prerogatives freely. A previous study has demonstrated that paying pharmacists on a capitation basis for their Medicaid patients effects a highly significant increase in the rate of generic substitution. The present study was conducted to determine whether the pharmacists' newly acquired generic substitution habits "spill over" from Medicaid to non-Medicaid prescriptions as a result of capitation reimbursement. The results indicate that pharmacists who participated in the capitation experiment for the Medicaid drug program significantly increased their rate of generic substitution on non-Medicaid prescriptions. It was concluded that the same pharmacies that increased their substitution rate in the Medicaid program under capitation also increased their substitution rate on non-Medicaid prescriptions. Finally, generic substitutions in both the Medicaid and non-Medicaid studies generally involved the same labelers as well as drugs in the same therapeutic categories and with the same generic classifications.

Monheit, Alan C., Michael M. Hagan, Marc L. Berk and Gail R. Wilensky. "Health Insurance for the Unemployed: Is Federal Legislation Needed?" Health Affairs, Volume 3, Number 1, Spring 1984, pp. 101-111. Intramural.

The findings indicate that a relatively small proportion of unemployed workers--8 percent in 1977 and 13 percent in 1982--lost health insurance as a result of unemployment. Unemployed workers did not experience a decline in medical care use, either in comparison to employed workers or to periods in which they were

employed. However, both employed and unemployed workers who lack insurance throughout the year face difficulties in securing medical care.

Monheit, Alan C., Michael M. Hagan, Marc L. Berk and Pamela J. Farley. "The Employed Uninsured and the Role of Public Policy." Inquiry, Volume 22, Number 4, Winter 1985, pp. 348-364. Intramural.

Although most private health insurance is obtained through the workplace, important gaps remain in the present system of employment-related coverage. Data from the 1977 NMCES and 1980 National Medical Care Utilization and Expenditure Survey reveal that throughout each year, over 9 million persons with employment experience were uninsured. Together with their uninsured dependents, these individuals account for three-quarters of all persons who lack health insurance for the entire year. This paper examines the circumstances of the employed uninsured including their demographic and economic characteristics, their opportunity to secure health insurance fringe benefits, their medical care use and expenditures relative to the employed insured, and the cost and scope of benefits available in private insurance that is not work-related. The findings of these analyses are used to circumscribe alternative public policy responses. The results suggest that the inability of uninsured workers to secure health insurance on the same basis as insured workers is an important equity issue requiring serious public policy consideration.

Okada, Louise M., and Thomas H. Wan. "Medicaid, Medicare and Private Health Insurance Coverage in Five Urban, Low-Income Areas." Inquiry, Volume 15, December 1978, pp. 336-344. Intramural.

This paper addresses several questions concerning public and private financing mechanisms for health care in five urban, low income areas, using data collected by household interview. Because of the relatively uniform Medicare program, insurance protection of the elderly was fairly complete. Among other age groups, in areas with a high poverty level and low Medicaid, there remain large segments of the population least able to pay for health care without any insurance.

Raskin, Ira E., Rosanna M. Coffey and Pamela J. Farley. "Controlling Health Care Costs: An Evaluation of Strategies." Evaluation and Social Planning, Volume 3, 1980, pp. 1-4. Intramural.

There has been much discussion about the factors underlying inflation in the health care sector and the means to moderate increases in health expenditures. This paper identifies various cost-containment strategies and synthesizes research findings that may be helpful in evaluating their effectiveness. The review demonstrates the complexity of the issues and relationships that must be confronted and understood in cost containment. The delivery system is shown to be not well-suited to improving efficiency and restraining health care expenditure. Any single strategy, whether it involves restructuring the market or more

direct regulation, cannot in itself accomplish the combination of expenditure control and adequacy of services that is socially desirable. A number of mutually reinforcing strategies are required. Finally, more empirical and analytical information on incentives, provider and regulatory decisionmaking, costs of regulation, and the dynamics of negotiation, is essential for the design of an effective cost-containment program.

Rosenthal, Gerald. "Controlling the Cost of Health Care." Zubkoff, Raskin and Hanft (eds.), Hospital Cost Containment: Selected Notes for Future Policy, Prodist, 1978, pp. 33-56. Intramural.

The linkage between controlling health care costs and achieving the goals of public health policies is described. A synthesis of research findings on the effects of financial incentives and disincentives of provider and consumer behavior is provided. The paper notes that the push and pull of conflicting incentives in the health care industry will lead to expectation of future inflation.

Sapolsky, Harvey M., et al. "Corporate Attitudes Toward Health Care Costs." Milbank Memorial Fund Quarterly/Health and Society, Volume 59, Number 4, Fall 1981, pp. 561-585. Grant No. HS 03447.

Most Americans receive their protection against health care costs through benefits provided by employers; the level of corporate concern about the resulting rising costs will inevitably affect national policy. Officials in selected major firms, when interviewed, showed little concern, and even less willingness to risk offending unions, employees, and customers through control of benefit expenditures. It is unlikely that corporations will take a significant role in controlling health care costs.

Scheffler, Richard M. "The United Mine Workers' Health Plan: An Analysis of the Cost-Sharing Program." Medical Care, Volume 22, Number 3, March 1984, pp. 247-254. Contract No. 233-79-3024.

This article reports on the introduction of a cost-sharing health care plan to the United Mine Workers. The authors discuss the data base and analyze the impact of the program on the use of health care, the probability of a hospital admission, hospital expenditures and length of stay, the demand for physician services, and the probability of seeing a physician. Hospital admissions and hospital expenditures per stay decreased, as did the probability of seeing a physician. It is suggested that these behavioral adjustments to cost sharing are fairly rapid and long lasting.

Schroeder, Steven A., et al. "Frequency and Clinical Description of High-Cost Patients in 17 Acute-Care Hospitals." The New England Journal of Medicine, Volume 300, Number 23, June 7, 1979, pp. 1306-1309. Contract No. HRA 230-77-0035.

To assess the potential impact of national "catastrophic" health insurance on the medical-care system, the frequency and clinical characteristics of high-cost patients were surveyed at 17 acute-

care hospitals in the San Francisco Bay Area. The percentage of patients whose yearly hospital charges exceeded $4000 in 1976 ranged from 4 at a community hospital to 24 at a referral hospital. Hospital costs charged to these patients ranged from 20 to 68 percent of total billings, with the highest percentages generally occurring at large referral hospitals. Forty-seven percent of adult high-cost patients had chronic medical conditions, and only one in six suffered from an acute medical "catastrophe." In addition, more than 13 percent of high-cost patients died in the hospital.

National catastrophic health insurance is likely to pay for much chronic illness and terminal care and divert resources toward acute-care hospitals.

Sloan, Frank A., and Bruce Steinwald. "Physician Participation in Health Insurance Plans: Evidence on Blue Shield." Journal of Human Resources, Volume 13, Number 2, Spring 1978, pp. 237-263. Grant No. HS 00825.

Various health insurance programs, including Blue Shield, have developed arrangements whereby the physician agrees to accept the insurer's reimbursement as payment in full. Incentives facing the physician to accept an arrangement of this type are reviewed in this study. The empirical work uses data on individual physicians from a 1973 survey. The results indicate that physician willingness to accept insurer reimbursement as payment in full is sensitive to the amount the insurer pays for specific procedures and to other insurance program characteristics. Physicians located in high patient income areas and/or with relatively prestigious credentials are less likely to accept insurer payments as payment in full. The empirical findings are used to generate policy implications pertaining to the Medicare and Medicaid programs, to medical care quality-access tradeoffs and to national health insurance.

Steinmetz, Nicholas, and John R. Hoey. "Hospital Emergency Room Utilization in Montreal Before and After Medicare: The Quebec Experience." Medical Care, Volume 16, Number 2, February 1978, pp. 133-139. Grant No. HS 00649.

The impact of the introduction of Medicare in Quebec on hospital emergency room services was examined in Metropolitan Montreal. After Medicare, the emergency room visit rate increased 14 percent per year compared to a 7 percent per year increase in the five years preceeding Medicare. The outpatient clinic visit rate continued an upward trend (4 percent per year). In six of the hospitals selected for more detailed studies, patient interviews revealed that before Medicare 33 percent of emergency room attenders attempted to contact a physician before reporting to the emergency room and 63 percent were successful in speaking to the physician. After Medicare, 39 percent attempted but only 38 percent were successful. Before Medicare, 47 percent of patients said that their usual source of care was a private physician and

only 17 percent usually sought care in the emergency room. After Medicare 58 percent reported a private physician and 31 percent the emergency room. These findings together with the increased population density of physicians and increased annual number of physican visits per person suggest that there has been a substantial rise in demand from the public for medical care of which one important early manifestation is an increased reliance on emergency rooms.

Wallen, Jacqueline, Pamela Roddy and Samuel M. Meyers. "Male-Female Differences in Mental Health Visits Under Cost-Sharing." Health Services Research, Volume 21, Number 2, June 1986, Part II, pp. 341-350. Intramural.

This article, which was prepared as part of a larger study of the impact of the copayment requirement on United Mine Workers of America (UMWA) beneficiaries carried out at the National Center for Health Services Research (NCHSR), compares male to female changes in ambulatory care visits for mental disorders and discusses the implications of these changes for the use of other services and for the quality of care. Figures were derived from aggregate claims data provided by the UMWA for the time periods immediately preceding the introduction of copayment (full coverage for all health care) and the first year following the introduction of copayment. Findings suggest that, at least as far as visits for mental disorders are concerned, copayment may reduce necessary visits. The men in the population, who sought care for mental disorders more sparingly than women and for more severe complaints, were most affected by copayment.

Wilensky, Gail R. "Government and the Financing of Health Care." American Economic Review, Volume 72, Number 2, May 1982, pp. 202-207. Intramural.

This paper examines the indirect government health care subsidies that result from tax exclusions of employer-provided health insurance and other indirect subsidies, such as Medicaid, received primarily by the poor. Overall, government expenditures associated with these policies go in equal porportion to the high and middle income population and the poor. The other low-income group benefits least.

Wilensky, Gail R., and Amy K. Taylor. "Tax Expenditures and Health Insurance: Limiting Employer-Paid Premiums." Public Health Reports, Volume 97, Number 5, September-October 1982, pp. 438-444. Intramural.

This paper examines some of the effects of placing limits on the amount of health insurance premiums that employers can provide on a tax-free basis. The number and characteristics of people affected are shown, amounts of additional tax incurred, changes in additional taxes relative to income, and the total amounts of revenue at risk under various tax-free limits are discussed.

Wilensky, Gail R., and Marc L. Berk. "Poor, Sick and Uninsured." Health Affairs, Volume 2, Number 2, Summer 1983, pp. 91-95. Intramural.

This paper examines the cost of providing care to the approximately 1.4 million Americans who in 1977 were poor, sick, and lacked health insurance. It was estimated that the cost of including such people in a Medicaid type program in 1977 would be about 987 million dollars. The cost in 1982 would be about 3.4 billion. This four-fold increase in cost is due partly to an increase in costs and partly due to a doubling of the population in jeopardy.

Wilensky, Gail R., Pamela J. Farley and Amy K. Taylor. "Variations in Health Insurance Coverage: Benefits vs. Premiums." Milbank Memorial Fund Quarterly/Health and Society, Volume 62, Number 1, Winter 1984, pp. 53-81. Intramural.

This paper considers two features of procompetitive legislative proposals--offering employees more options in their choice of insurance plans and taxing some portion of employer-paid health insurance. It is specifically concerned with the likely effect on health insurance benefits. Judging from the benefits now purchased by employees who spend the most on health insurance, compared to others, the reduction in premiums brought about by taxing employer-paid premiums is likely to have the greatest effect on coverage for more routine and perhaps more discretionary health expenses such as dental and vision benefits in contrast to hospital care. The present system of mainly single option groups provides a systematic income transfer to families with predictably high expenses from those with predictably low expenses. Encouragement of multi-option groups is likely to reduce these transfers. However, other, explicit mechanisms for compensating those with continuing and extensive medical problems may be more efficient and equitable than continued reliance on single-option health insurance groups.

Wyszewianski, Leon. "Families with Catastrophic Health Care Expenditures." Health Services Research (forthcoming). Contract No. 233-81-3032.

This paper describes the characteristics of families with catastrophic health care expenditures. Based on data from a national sample, three overlapping groups of families are considered: those incurring annual out-of-pocket expenditures that exceed 5.0, 10.0, and 20.0 percent of the family's income. Such families represent a small percentage of all families but they account for a disproportionally large share of total health care expenditures. Nevertheless, the actual amounts spent out of pocket by most of these families are relatively small. Modest sums can be financially burdensome to these families because they are more likely to be low-income and to be headed by someone who is not employed. Families with catastrophic expenditures are also more likely to be headed by someone 65 or older and, consistent with that, a greater share of their total expenditures is covered by Medicare. However, all other third-party payors cover a relatively smaller share of total expenditures for these families than they do

for all families, reflecting the generally worse third-party coverage of families with catastrophic health expenditures. The implications of these findings for several current issues are discussed, including catastrophic coverage proposals for Medicare, and proposed programs to help the medically indigent and the uninsured.

Wyszewianski, Leon. "Financially Catastrophic and High-Cost Cases: Definitions, Distinctions, and Their Implications for Policy Formulation." Inquiry (forthcoming). Contract No. 233-81-3032.

This article proposes that, in order to facilitate discourse and improve the formulation of policy, a clear distinction be made between "financially catastrophic" and "high-cost" when referring to health care expenditures. By the definitions proposed here, a case is financially catastrophic if the expenditures are large relative to the patient's ability to pay; for example, when out-of-pocket medical expenditures exceed 15 percent of annual family income. A case is high-cost, on the other hand, if total expenditures exceed a set amount, such as $10,000 in a year's time, regardless of source of payment or ability to pay. Similarly, "high-cost illness" describes diseases and conditions that frequently result in high-cost cases, while "financially catastrophic illness" refers to diseases likely to be associated with financially castastrophic cases. Building on these distinctions, the article examines the role of third-party coverage and other resources in determining whether a high-cost case is also financially catastrophic. The usefulness of the proposed categorization is illustrated by applying it to several current policy issues.

Yesalis, Charles E., et al. "Use and Costs Under the Iowa Capitation Drug Program." Health Care Financing Review, Volume 3, Number 1, September 1981, pp. 127-136. Grant No. HS 02658.

This article evaluates changes in the use of drug services and the corresponding costs when the conventional fee-for-service system for reimbursement of pharmacists under Medicaid is replaced by a capitation system. The fee-for-service system usually covers ingredient costs plus a fixed professional dispensing fee. The capitation system provided a cash payment (which varied by aid category and season of the year) per Medicaid eligible the first of each month. The study examines drug use and costs in two experimental rural counties during a 1-year preperiod in which the fee-for-service form of reimbursement was employed, as well as a 2-year postperiod in which the capitation system was used. The results were compared with use and cost patterns in two other rural counties which remained on the fee-for-service system during the same 3-year period.

Drug use was similar among control and experimental counties with the exception of nursing home patients; use in this category decreased under capitation and increased under fee-for-service.

Using three measures of drug cost: 1) average cost of a day's drug therapy; 2) average drug costs per recipient; and 3) average Medicaid expenditures for drug services per recipient, significant savings under the capitation reimbursement system were observed as compared to the fee-for-service system. Savings under capitation can be attributed to shifts in prescribing and dispensing behavior, as well as changes in use by nursing home patients. Based upon these findings, the total savings resulting from implementing capitation would be approximately 16 percent when compared to fee-for-service reimbursement.

Yesalis, Charles E., et al. "Capitation Payment for Pharmacy Services: I. Impact on Drug Use and Pharmacist Dispensing Behavior." Medical Care, Volume 22, Number 8, August 1984, pp. 737-745. Grant No. HS 02658.

Results of a two-county pilot study in Iowa revealed that capitation may have significant advantages over fee-for-serivce (FFS) reimbursement in the Medicaid drug program. Consequently, the capitation program was expanded to 32 counties on April 1, 1981 and continued through December 31, 1981. Another 32 counties were used as part of a before:after/experimental:control design. Pharmacists were paid 80% of projected drug expenditures in advance based on the type of Medicaid eligibles who chose them as their providers. The remaining 20% was withheld in an escrow account to be used for supplemental, emergency, and bonus payments. Pharmacists who participated in this experiment were guaranteed that their gross profits on Medicaid prescriptions would remain at least equal to what they would have been if they had remained under the current FFS payment system. Major differences in drug use levels and pharmacist dispensing behavior under capitation financing were observed in the pilot study. However, no such changes associated with payment type were noted in the expanded program. Relative to these findings, a discussion of pharmacist attitudes is presented.

Yesalis, Charles E., et al. "Capitation Payment for Pharmacy Services: II. Impact on Costs." Medical Care, Volume 22, Number 8, August 1984, pp. 746-754. Grant No. HS 02658.

Four areas of cost were analyzed in the expanded capitation drug program: total program costs, drug costs, escrow account distribution, and administrative costs. Total program costs were, on average, 9% higher under capitation. Drug costs, however, were 3% lower than under fee-for-service (FFS) reimbursement. This discrepancy is probably because pharmacists were not at financial risk under the program, the capitation rates were higher than intended, there were many emergency claims, and other aspects of the research environment. Although administrative costs were large, almost two thirds of the development cost was for one-time work, which could be transferred to another state at little or no expense. One third of the total administrative costs can be attributed to complying with regulations of the Health Care Financing Administration. Significant refinement of the present

capitation model may be necessary before this financing innovation is used elsewhere. Modifications might include limiting the system to nursing home patients, placing pharmacists at partial financial risk, restricting participation to pharmacies that service a large number of Medicaid eligibles, and basing capitation rates in part on the drug use behavior of cash-paying patients.

Yesalis, Charles E., and Gary S. Levitz. "The Life and Death of a Field Experiment: A Case Study of Health Care Research in a Hostile Environment." Journal of Health Politics, Policy and Law, Volume 9, Number 4, Winter 1985, pp. 611-628. Grant No. HS 02658.

This paper discusses the effects of powerful confounding events on the evaluation of an innovative health care payment program--an experiment with capitation payment for pharmacy services for Medicaid recipients. The research, conducted at the University of Iowa from 1975 to 1982, used a sophisticated experimental design; it was funded by the National Center for Health Services Research, the Health Care Financing Administration, and the State of Iowa, representing an investment of over two million dollars. Despite this investment, and interest of many at the national level, events in the research environment during this period may well have distorted the conclusion of the research. Thus the case study highlights the problems of conducting evaluation research, particularly social experiments, on innovative programs perceived as threatening to the status quo.

LONG-TERM CARE

- o Insurance/Financing
- o Alternative Care Settings
- o Cost Analysis
- o Deinstitutionalization

Cafferata, Gail L. "The Elderly's Private Insurance Coverage of Nursing Home Care." American Journal of Public Health, Volume 75, Number 6, June 1985, pp. 655-656. Intramural.

About 40 percent of Medicare beneficiaries had private insurance coverage of skilled nursing facilities (SNF) in 1977. Data from NMCES show that among such persons, about 85 percent had full coverage of Medicare's Part A copayments for days 21-100 but only 15.7 percent had maximum coverage of at least 365 days of care or a benefit of $100,000 or more. The most comprehensive benefits are found among persons with middle or high incomes; more generous first-dollar coverage is found in the North Central and South regions, and more generous maximums in the West.

Doherty, Neville, and Barbara Hicks. "Cost-Effectiveness Analysis and Alternative Health Care Programs for the Elderly." Health Services Research, Volume 12, Number 2, Summer 1977, pp. 190-203. Grant No. HS 02563.

A generalized cost-effectiveness technique for comparing alternative health care programs is described, and an example is given of its use in evaluating programs for care of the elderly. The analytical method requires setting criteria and standards for each outcome and cost dimension and assessing the relationship between these standards and patient status. The relative effectiveness and costs of each setting are examined in a simple tabular display that allows comparison of each program's attainments on each criterion so that alternatives may be ranked according to the extent to which they meet standards and incur costs.

Estes, Carroll L. "Long-Term Care and Public Policy in an Era of Austerity." Journal of Public Health Policy, Volume 6, Number 4, December 1985, pp. 464-475. Grant No. HS 04042.

An analysis of Medicaid data from 50 states indicates the following trends since 1981: (1) Eligibility standards are the most influential means of affecting the number and type of people covered. Two major state trends have been observed: first, states do not often directly reduce income standards; they simply do not increase these standards despite inflation. Second, states have been treating SSI eligibles differently, depending on whether they were living independently or in supported housing. Needs standards for SSI recipients in independent living arrangements were much less likely to keep pace with inflation. (2) The proportion of Medicaid recipients to all persons in poverty has declined. (3) The number of recipients has declined. (4) States have stopped increasing benefit coverage. (5) Even though Medicaid access has been reduced, the cost per recipient continues to increase because of rising medical costs. Research on nonprofit health and social service agencies indicates that four major policy changes appear to have contributed to restructuring of the traditional community service delivery system: (1) There has been an overall reduction in federal funding for social services that the states have not been

willing or able to replace. Further, the gap between health dollars and social service dollars has widened. (2) Policy changes, for example requiring competitive bidding, have encouraged the entry of for-profits in the social services arena with resultant erosion of a coordinated community delivery system for the elderly. (3) Medicare coverage of home health services has increased the demand for in-home services. In-home service for the frail elderly is growing, while community based social services is shrinking. (4) The DRG hospital reimbursement method under Medicare is increasing the demand of a sicker clientele on a weakened community delivery system.

Feder, Judith, and William Scanlon. "Regulating the Bed Supply in Nursing Homes." Milbank Memorial Fund Quarterly/Health and Society, Volume 58, Number 1, Winter 1980, pp. 54-88. Grant No. HS 02620.

Federal and state regulation of capital expenditures has been advanced as a means both to ensure rational allocation of resources and to control costs. But evidence drawn from eight states suggests that limiting the supply of nursing home beds ("certificate of need"), without refining conflicting standards of eligibility, quality control and reimbursement policies (Medicaid and "rate-setting"), effectively discriminates against persons most in need of medical care. Alternative strategies for achieving economy, equity, and efficiency are explored.

Harkey, P. Wayland, and Herbert G. Traxler. "Share-A-Home: A Unique Community-Based Residential Alternative for the Dependent Elderly." Journal of Applied Gerontology, Volume 1, June 1982, pp. 90-94. Intramural.

The lack of an adequate range and supply of community-based residential alternatives for the dependent elderly is a major contributing factor to premature institutionalization. A residential program originated in Florida, called Share-A-Home, is one option that warrants greater attention by gerontologists, community planners, and other professionals.

Meiners, Mark R. "An Econometric Analysis of the Major Determinants of Nursing Home Costs in the United States." Social Science and Medicine, Volume 16, Number 8, 1982, pp. 887-898. Intramural.

This study presents statistical cost function estimates based on data from the 1973-74 National Nursing Home Survey. Using multiple regression techniques, multiplicative and additive models of both total cost and operating cost are presented. Findings from the analysis contribute to the growing literature on nursing home costs and provide added insight to a number of important topics. Economies to scale are indicated with an optimum size in the 300-400 bed range. Flat-rate reimbursement systems and other systems which set rates prospectively are shown to be associated with significantly lower nursing home costs when compared to the incentives of cost based systems with or without limits and the incentives of private financing. Increases in both the admission

rate and the occupancy rate are associated with higher costs though only the latter relationship proves of much practical significance, with the cost savings more pronounced for facilities starting with low occupancy rates. The profit motive is confirmed as an important incentive for containing costs. Holding several important level or scope of service indicators constant, proprietary nursing homes were found to have total costs 7 percent lower and operating costs 11 percent lower than in the voluntary non-profit nursing homes. The range of therapeutic services available and the type of staff coverage of the daily shifts provided in the nursing homes are confirmed as key cost determinants. Evidence is also provided which suggests that residents with mid-level dependency are relatively more costly to treat than those who are completely dependent or independent. The usefulness of other facility descriptions and quality proxy measures as cost determinants is also explored. The results are compared to those from other recent nursing home cost function studies.

Meiners, Mark R. "The Case for Long-Term Care Insurance." Health Affairs, Volume 2, Number 2, Summer 1983, pp. 55-79. Intramural.

Long-term care expenses are frequently catastrophic for elderly persons needing such care. Private insurance is not generally available for these services. As a result, most elderly needing long-term care end up on Medicaid. The potential for relieving this problem through private long-term care insurance is examined in this paper. The reasons for market failure are outlined and discussed in the context of the current insurance market for nursing home and home health services.

A prototype policy is formulated as a basis for recommendations concerning services covered, waiting periods, length of coverage, benefit payments and financing mechanisms. Insurance regulation, Medicaid and private financing capacity are examined as potential contributors to the market failure. Evidence is provided which suggests that a private market for long-term care insurance can exist and that it may serve to relieve some of the current pressures on the Medicaid system brought about by the long-term care needs of the elderly.

Meiners, Mark R., and Gordon R. Trapnell. "Long-Term Care Insurance: Premium Estimates for Prototype Policies." Medical Care, Volume 22, Number 10, October 1984, pp. 901-911. Intramural and Contract No. 233-81-3033.

Private insurance has been suggested as a way to relieve the growing pressure on Medicaid budgets brought about by the long-term care needs of the elderly. This paper provides premium estimates for prototype long-term care insurance policies. Alternative specifications of services covered, amount of benefits paid per day, waiting period before benefits begin, years of coverage, age at time of purchase, administrative expenses, risk selection and tax treatments are examined. The estimates are useful in

understanding the general order of magnitude of premiums for various types of policies and assumptions. They may also be useful in deriving initial rates for new types of policies or in setting initial rates for an insurer with no access to actual experience data.

Meiners, Mark R., and Rosanna M. Coffey. "Hospital DRGs and the Need for Long-Term Care Services: An Empirical Analysis." Health Services Research, Volume 20, Number 3, August 1985, pp. 359-384. Intramural.

The Medicare DRG-based Prospective Payment System encourages hospitals to reduce length of stay for elderly patients. Thus, discharges to long-term-care services are expected to increase. Maryland hospital data for the year 1980 are used to identify those DRGs which most frequently represent patients discharged to nursing home and home health care services, explores the incentive to discharge earlier under PPS those patients needing long-term care versus short-term care and describes characteristics of patients most likely to face increased pressure of earlier discharge to nursing homes and home health programs. Because only a limited set of patient characteristics are available from Maryland hospitals, data from a study of San Diego nursing homes are used to further explore sociodemographic and health status measures associated with unusually long stays in a hospital prior to nursing home placement. This research suggests that the DRG reimbursement system gives hospitals a strong incentive for earlier discharge of patients needing long-term-care services. However, hospitals that target only long-term-care patients for early discharge will not substantially gain under PPS because they represent a small portion of the cases treated in the hospital and a small percent of unreimbursed days.

Ouslander, Joseph G., and Robert L. Kane. "The Costs of Urinary Incontinence in Nursing Homes." Medical Care, Volume 22, Number 1, January 1984, pp. 69-79. Purchase Order 82-A0354878O1D.

A simple model was used to calculate the contribution of urinary incontinence (UI) to the costs of nursing home care. First-order costs are defined as the costs of managing UI: supplies, laundry, and labor. Second-order costs are defined as the costs of managing the complications of UI. Data were gathered from nursing homes, medical supply companies, and a large laundry company. First-order costs of four common methods of managing UI range between $3.00 and $11.00 per incontinent patient per day. Based on these estimates, UI accounts for between $0.5 and $1.5 billion (3-8%) of the costs of nursing home care. Management of UI with indwelling catheters results in the lowest first-order costs, but the second-order costs (as well as the potential increased morbidity and mortality risks) probably outweigh any cost savings. More active evaluation and treatment of UI in nursing homes could result in considerable cost savings and improved well-being for both patients and caregivers.

Scanlon, William J. "A Theory of the Nursing Home Market." Inquiry, Volume 17, Spring 1980, pp. 25-41. Grant No. HS 02620.

This paper describes the market for nursing home care, reviewing the composition and determinants of demand as well as the behavior of suppliers. Discussion is provided on the contribution of government policies to the persistence of excess demand and the factors involved in market disequilibrium.

Siegenthaler, Linda A. "Deinstitutionalization in Switzerland: The Incrementalist Model." International Journal of Mental Health, Volume 11, Number 4, Winter 1982/83, pp. 137-152. Intramural.

This paper reviews the multitude of factors and agents involved in decision-making and service delivery in Switzerland's mental health care system, both nationally and at the cantonal level. The restructuring of services involves incrementalism, a process of small steps.

Traxler, Herbert G. "Determinants of Nursing Home Costs in Florida: Policy Implications and Support in National Research Findings." Public Health Reports, Volume 97, Number 6, November-December 1982, pp. 537-544. Intramural.

Descriptive and econometric analysis of the major nonquality determinants of nursing home costs for Florida shows that mean costs, size and occupancy rate increased between 1971 and 1976, that per diem costs and occupancy rate were inversely related and that the per diem cost was lower in rural than in urban areas. Regression of the data shows that--next to inflation, as expressed by the Consumer Price Index--the occupancy rate accounts for most of the variation in per diem costs, followed by size, urban-rural location, and by type of control. The hypothetical "optimal," defined as lowest cost-size range, was calculated to be more than 350 beds. Recent research substantiates most of these findings.

Medicaid Cost Reports from Florida's nursing homes were the source of the information analyzed: by 1976, the sixth year of the study, the data base covered nearly 9 of 10 licensed beds in the State.

Some policy implications can be drawn from the analysis. Reductions in per diem costs could be achieved by higher occupancy rates, especially in the larger nursing homes, and a reduction in the rate of inflation would reduce the rate of increase in nursing home costs.

Traxler, Herbert G. "SHARE-A-HOME: Economics and Logistics of Unrelated Elderly Living as a 'Family'." Journal of Applied Gerontology, Volume 2, December 1983; pp. 61-69. Intramural.

A unique form of shared living of mostly elderly, dependent persons developed under the name of "Share-A-Home" (SAH) in central Florida during the 1970's. In recent years, SAH has spread to other states and, in modified form, to Florida's west coast, after successfully overcoming economic, legal, and zoning barriers. This form of shared living by unrelated elderly persons plus a

housekeeper/manager in a low-density residential area and on a self-supporting basis is a promising community-based option in the long-term care continuum. In mid-1981, the author led a DHHS Bureau of Health Planning team to study Florida SAH developments, subsequently summarized some of the major findings in a case study and coauthored an article on the subject in the first issue of the Journal of Applied Gerontology. The present article addresses more specifically the major economic and logistic barriers and considerations--such as zoning issues--involved in successfully initiating and operating an SAH.

Weissert, William, et al. "Effects and Costs of Day-Care Services for the Chronically Ill: A Randomized Experiment." Medical Care, Volume 18, Number 6, June 1980, pp. 567-584. Intramural.

Two long-term care settings not now covered by Medicare--adult day care and homemaker services--were studied in a randomized experiment to test the effects on patient outcomes and costs of using these new services. This article reports findings for day care. Patients' physical, psychosocial and health functions were assessed quarterly, and their Medicare bill files were obtained. Medicaid data were obtained on most patients, but few used many Medicaid-covered long-term care services. Multistage analysis was performed to mitigate effects of departures from the randomized design. Day-care patients showed no benefits in physical functioning ability at the end of the study, compared with the control group. Institutionalization in skilled nursing facilities was lower for the experimental group than the control group, but factors other than the treatment variable appeared to explain most of the variance. There was a possibility that life was extended for some day-care patients. The new services averaged $52 per day or $3,235 per year. When costs for existing Medicare services used were added, the yearly cost of the experimental group was $6,501, compared with $3,809 for the control group--an increase of $2,692 or 71 percent.

Weissert, William, Thomas T. H. Wan, Barbara B. Livieratos, and Julius Pellegrino. "Cost Effectiveness of Homemaker Services for the Chronically Ill." Inquiry, Fall 1980. Intramural.

This paper reports the results of a randomized experiment that tested the effects and costs of providing so-called homemaker services to a chronically ill population. The concept of homemaker services, as distinct from professional home health and therapeutic nursing services, originally was developed for children by welfare agencies in the early part of the century. Later, the focus of such services changed from children to adults, with special emphasis on the chronically ill elderly. In the view of some long-term care specialists, homemaker or home health aide services for the elderly now should be regarded as an accepted supplement to family health care, deserving a legitimate position in a continuum of care.

PRACTICE PATTERNS AND PRODUCTIVITY

- o Variations in Medical Practice
- o Supply/Distribution of Physicians
- o Role of Non-Physicians

Ernst, Richard. "Ancillary Production and the Size of Physicians' Practice." Inquiry, Volume 13, December 1976, pp. 371-381. Contract HSM 110-70-354.

Dependence on ancillary sales is strongly specialty-related. Evidence is inconclusive as to the magnitude of ancillary returns to scale, but consistent with the hypothesis that ancillary profit opportunities are an incentive in the formation of small groups. Ancillary production is not a significant source of increasing returns in large groups and probably not an influence on their formation.

Gabel, Jon R., and Thomas H. Rice. "Reducing Public Expenditures for Physician Services: The Price of Paying Less." Journal of Health Politics, Policy and Law, Volume 9, Number 4, Winter 1985, pp. 595-609. Intramural.

The purpose of this paper is to examine how physicians respond to changes in payment levels from government insurers. Analysis focuses on two issues: controlling overall program expenditures, and assuring full access to care for program clients. Evidence is reviewed from natural experiments in which payment levels were increased, frozen, or decreased. These studies show that freezing or reducing payment levels is not effective in controlling program expenditures, because physicians responded by increasing the quantity and complexity of services provided. Furthermore, when government programs freeze or reduce their payment levels, physicians are less likely to treat the clients of these programs. The study concludes that policymakers must seek alternative strategies for controlling program expenditures.

Hadley, Jack. "Alternative Methods of Evaluating Health Manpower Distribution." Medical Care, Volume 17, Number 10, October 1979, pp. 1054-1060. Grant No. HS 02790.

Four desirable characteristics of an ideal method of evaluating health manpower distribution are postulated. Current approaches are evaluated using these criteria and are shown to be unsatisfactory. An alternative method, based on the economic theory of production, is then described. The paper concludes with some recommendations for further research.

Hoey, John R., and Alison D. McDonald. "Hospital Admission Before and After Medicare in Quebec." Medical Care, Volume 16, Number 1, January 1978, pp. 72-78. Grant No. HS 00649.

A 1 in 60 random sample of Quebec hospital admission records ("separations") for the years 1966 through 1974 was studied for evidence of change associated with the introduction in 1970 of universal health insurance. Non-surgical separation rates continued to decline in Montreal and remained steady in the rest of the province. In contrast, separations following surgical operation did not decline in Montreal and have increased substantially since 1970 in the rest of the province. Ten

operative procedures accounting for 41 percent of all surgical admissions were selected for separate study: of these, cholecystectomy, hysterectomy and hernia repairs conformed most closely to the new pattern. Directly or indirectly, Medicare may have contributed to these changes but more study is required to confirm or explain this.

Hoey, John, et al. "Physician Sensitivity to the Price of Diagnostic Tests: A U.S.-Canadian Analysis." Medical Care, Volume 20, Number 3, March 1982, pp. 302-307. Grant No. HS 02577.

A questionnaire containing 11 patient management problems was completed by 495 physicians and medical students at an American and a Canadian medical school. Respondents indicated whether they would order a particular diagnostic test in each case, given five different prices for the test. Approximately 25 percent of attending staff and a higher proportion of residents, interns and clerks responded that they would order the test depending on its price. Approximately 50 percent of attending staff and smaller proportions of residents, interns and clerks indicated that they would not order the test even if there were no price. Respondents in Montreal were more likely than those in Philadelphia to select a price-sensitive response, the reverse of the expected tendency. Since some tests may be ordered on the basis of price, education of physicians regarding the price of diagnostic tests may alter their use of these services, but a large proportion of tests are ordered because of clinically absolute reasons, which may be insensitive to price.

Hornbrook, Mark C., and Sylvester Berki. "Mode of Practice and Payment Method: Effects of Use, Cost, Quality and Access." Medical Care, Volume 23, Number 5, May 1985, pp. 484-511. Grant No. HS 04973.

This article summarizes what is known about the effects of the mode of organization of medical practice, method of remuneration of physicians, and method of payment by clients, on use, costs, quality and access to health care. Needed theoretical, methodological and empirical research to improve our understanding of the relationship of performance to practice organization and payment system is identified.

Kelly, Joyce V., and Fred Hellinger. "Physician and Hospital Factors Associated with Mortality of Surgical Patients." Medical Care, Volume 24, Number 9, September 1986, pp. 785-800. Intramural.

Recent studies have found an inverse relationship between hospital-specific mortality rates for selected conditions and the number of patients hospitalized with these conditions. These studies have not examined whether this inverse relationship is a result primarily of the nature and volume of services provided to patients by individual physicians or whether it reflects special characteristics of high-volume hospitals. This study examines these issues, using data that link characteristics of primary surgeons to the discharge abstract records of patients. The study

analyzes variation in hospital mortality associated with: (1) the total volume of specific surgical procedures performed in the hospital, (2) the volume of these procedures performed by the patient's primary surgeon, (3) physician board certification, and (4) other factors including patient severity of illness, patient age, hospital control, teaching status, size, and location. The findings confirm the inverse relationship found in other studies between patient mortality and the total volume of specific surgical procedures performed in the hospital. Physician board certification and hospital medical school affiliation also are found to be associated with lower patient mortality rates. However, there is no statistical relationship between the volume of services provided by individual surgeons and outcome, suggesting that the volume-outcome relationship reflects hospital rather than physician characteristics.

Kimbell, Larry J., and John H. Lorant. "Physician Productivity and Returns to Scale." Health Services Research, Volume 12, Number 4, Winter 1977, pp. 367-379. Contract No. HSM 110-70-35.

Cobb-Douglas production functions are used to estimate returns to scale in a sample of solo and group medical practices stratified by size and type of practice. Solo practices and small single-specialty groups are stratified by specialty, and large multispecialty groups are stratified as general practice-general surgery or comprehensive-care groups. Output measures used are gross revenue, total patient visits, and office visits; input measures reflecting practice scale are number of physicians, number of rooms, and number of nonphysician office personnel. Results indicate increasing returns to scale for solo and small group practices but decreasing returns to scale for very large groups. Possible reasons for inefficiency in large practices and the implications of the findings for public policy on health maintenance organizations are discussed.

Kviz, Frederick J. "Attitudes Toward Physician Advertising Among Rural Consumers." Medical Care, Volume 22, Number 4, April 1984, pp. 300-309. Grant No. HS 02778.

The issue of whether physicians should advertise their services has been the subject of much debate among health policymakers. This study reports data from a survey of rural residents in Illinois regarding attitudes toward physician advertising and reasons for opposition or support of the practice. The results indicate neither strong opposition nor strong support for physician advertising. While those who are opposed are largely nonspecific regarding their reasons, those in favor primarily expect that it will aid in the selection of a physician. However, few respondents indicate a predisposition to shop for a physician. Although the major concern about physician advertising is a danger of false advertising by some physicians, it appears that the respondents are not trusting of advertising in general rather than of advertising by physicians in particular. These findings suggest that regardless of its potential advantages, physician advertising may

be relatively ineffective because consumers may be inattentive, unresponsive, or distrusting.

Lewit, Eugene M., et al. "A Comparison of Surgical Assisting in a Prepaid Group Practice and a Community Hospital." Medical Care, Volume 18, Number 9, September 1980, pp. 916-929. Grant Nos. HS 00451 and HS 00179.

Previous studies of the work loads and time utilization of general surgeons in two different practice settings suggested that paraprofessional surgical assistants (SAs) could reduce surgeon assisting time and perhaps increase productivity. In order to further assess the potential advantage of using SAs as surgical assistants, the present study examines assisting patterns in a prepaid group practice where SAs are used and in a community hospital where only physicians are available to assist. In the prepaid group practice, 87 percent of general surgical procedures were performed with an assistant; in the community hospital, 67 percent of general surgical procedures were performed with an assistant. General practitioners also were found to assist in the community hospital; family practice residents, medical students and "others" also assisted in prepaid group. In both settings, the propensity to use an assistant was positively correlated with operative complexity. On operations of greatest complexity, surgeons were most likely to act as first assistants. The use of SAs was not usually associated with operative sessions longer than when surgeons assisted, except on operations of high complexity. In the prepaid group, SAs also frequently assisted on orthopedic surgery, neurosurgery and obstetrics-gynecology, only occasionally on otolaryngology and plastic surgery, and never on ophthalmology. It appears that in organizations such as a prepaid group practice, where mechanisms for sharing resources exist and incentives are provided to minimize the total cost of surgery, the utilization of SAs might be associated with cost savings. At present, organizational and financial barriers exist to the introduction of paraprofessionals as surgical assistants. It is difficult to advocate the modification of these barriers to facilitate the training and large-scale introduction of this new group of paraprofessionals in the current surgical market where there may already be an excess supply of surgeons.

Lorant, John H., and Larry J. Kimbell. "Determinants of Output in Group and Solo Medical Practice." Health Services Research, Volume 11, Number 1, Spring 1976, pp. 6-20. Contract No. HSM 110-70-35.

Certain structural and environmental factors other than technical combination of resources and firm size are hypothesized to affect medical practice output. Four groups of variables related to physician attributes and activities, practice organization and patient characteristics, community characteristics, and factors specific to medical groups are examined by regression for correlation with two measures of practice output: gross revenue and total patient visits. Some tentative conclusions are discussed in relation to policies that might increase practice output.

Mesel, Emmanuel, et al. "Economic Analysis of an Automated Billing System for Physicians' Services." Medical Care, Volume 14, Number 12, December 1976, pp. 1037-1051. Contract No. HSM 110-71-252.

An on-line Medicaid billing system for physicians' services was implemented and tested during a two and one-half year period in 100 offices throughout the State of Alabama. Participating physicians represented 17 percent of all physicians in the state. The monthly volume of Medicaid claims entered through the system represented more than 50 percent of the statewide load processed by the Medicaid carrier. Users entered claims data on standard Touch Tone telephones equipped with Carddialers, and received instructions and data confirmation from the central computer facility via voice answer-back. Input time for the average claim billing for two separate services was less than one and one-half minutes and resulted in a reduction of clerical labor required for manual input by at least 50 percent.

After a fee-for-service was inaugurated, the system workload remained at 86 percent of its load level before fee-for-service. Those physicians willing to pay for the billing service were high-volume users who had come to depend on the system and who appreciated the economies that the system had achieved for them in their office billing practices. An average claim consisting of two items of service could be billed at a cost of $0.50, exclusive of user terminal rental ($6 per month per office) and the cost of data entry personnel (between $0.05 and $0.10 per claim). Various algorithms have been offered for use in estimating an annual budget for an on-line billing system given alternative system configurations, methods of financing, annual volume of units of service and the geographical nature of the population to be served.

The tasks of preparing, processing and storing insurance claims information have placed a costly and time-consuming burden on both providers of medical services and fiscal intermediaries. The unfortunate result is that the cost of submitting an insurance claim for professional services is a disproportionate fraction of the amount paid for providing the service. For general practitioners, who provide the largest number of individual services, this share may be more than one-fourth of the payment for most common services. Similarly, for the Medicaid or Medicare intermediary or for the insurance carrier, the cost of preparing the recording data from source documents is a large part of total processing costs.

The objective of the On-Line Medicaid Billing System project was to demonstrate that it is possible to reduce the costs of submitting claims from the physician's office as well as to reduce the costs of data preparation in the carrier's system. This publication focuses on an economic analysis of cost effectiveness. Readers interested in system design, development and on-line operation will find detailed descriptions in previously published reports.

Rice, Thomas. "Determinants of Physician Assignment Rates by Type of Service." Health Care Financing Review, Volume 5, Number 4, Summer 1984, pp. 33-42. Grant No. HS 04729.

In this article, the determinants of physician assignment rates under the Medicare program are examined separately for medical, surgical, laboratory, and radiology services. Data for this study include copies of all Medicare claims submitted by over 1,200 Colorado general practitioners, internists, and general surgeons during the periods both before and after they experienced a substantial change in program reimbursement rates. The results indicate that there is a significant positive relationship between changes in reimbursement and changes in assignment rates for medical, laboratory, and radiology services, but the relationship for surgical service is not significant. Furthermore, for laboratory and radiology services, only the change in medical service reimbursement is significant--reimbursement rates for laboratory and radiology services are not.

Rice, Thomas H. "The Impact of Changing Medicare Reimbursement Rates on Physician-Induced Demand." Medical Care, Volume 21, Number 8, August 1983, pp. 803-816. Grant No. HS 04729.

This paper examines how changes in Medicare reimbursement rates affect the degree to which physicians induce demand for Medicare services. Demand inducement is measured by analyzing changes in the intensity and quantity of services provided and the number of ancillary services ordered. The empirical work is based on data that include copies of all Medicare claims for Colorado physicians between 1976 and 1978. During that period a change in the state's Medicare reimbursement system occurred, resulting in a large increase in some physicians' reimbursement rates and a relative decrease in those of others. Using this "natural experiment," one can determine how changes in financial incentives affect various forms of demand inducement. The study results are consistent with the theory that demand inducement exists. It appears to take several forms: provision of more highly intensive medical and surgical services, greater quantities of surgical services and ordering of more laboratory tests.

Rosenblatt, Roger, and Ira Moscovice. "The Growth and Evolution of Rural Primary Care Practice: The National Health Service Corps Experience in the Northwest." Medical Care, Volume 16, Number 10, October 1978, pp. 819-827. Grant No. HS 01978.

The economic growth and development of 12 rural primary care practices established by the National Health Service Corps (NHSC) in the Pacific Northwest between 1973 and 1975 was examined. The 12 practices represented four types of rural health care delivery systems based on the size of the service area, the presence and type of hospital within that service area and the number and kinds of providers in the service area. The results indicate that rural primary care practices, in at least one region of the United States, can approach financial self-sufficiency in two to three

years. However, practices grow at different rates, depending on the nature of their surrounding environment. Provider retention appeared to be correlated with practice growth and stability. In the setting studied practices in which physicians were the major providers and had ready access to hospital facilities grew relatively rapidly, approaching financial self-sufficiency within two to two-and-a-half years. Practices which contained physicians who did not have ready access to a hospital grew slower and had more erratic growth patterns than other types of practices. Practices staffed solely by nurse practitioners initially had slow growth, but began to approach self-sufficiency after three years of operation. The study has improved the ability of the Public Health Service, HEW, Region X to predict the rate of growth of different types of rural primary care practice. This has proven helpful in allowing the Public Health Service to more accurately advise inquiring rural communities about alternatives for health care delivery systems.

Rossiter, Louis F. "Prospects for Medical Group Practice Under Competition." Medical Care, Volume 22, Number 1, January 1984, pp. 84-92. Intramural.

If competition proposals truly hope to reduce the cost of medical care, they must put forth a key role for physicians. Inasmuch as most proposals focus on the market for health insurance, the transmitting mechanism for influencing physician behavior is largely unknown. A larger role for competing groups of physicians is hypothesized, but the effect of competition is likely to be uneven because group practice physicians are already in the most competitive areas of the country and very few are in rural areas or in particular regions of the country. Little evidence can be found for differences between solo and group practice physicians in terms of productivity or fee levels. Thus the value of promoting group medical practice rests on their ability to reduce the use of expensive medical care. It is possible that competition proposals may not hold much promise for reducing costs. Nevertheless, they may still be worthwhile if they are better able than the present system to translate the wishes of consumers into the product of providers.

Salkever, David S., et al. "Episode-Based Efficiency Comparisons for Physicians and Nurse Practitioners." Medical Care, Volume 20, Number 2, February 1982, pp. 143-153. Grant Nos. HS 00427 and HS 01964.

Most previous studies comparing the efficiency of new health practitioners with that of physicians have used the visit as the basic unit of output. Several researchers have noted, though, that the episode is a conceptually superior output unit in several respects, although it is more complex to deal with methodologically. This study demonstrates the application of episode-based methods for comparing the efficiency of physicians with that of nurse practitioners. Data are drawn from the information system of the Columbia Medical Plan and from observations of provider time inputs. The analysis is confined to

care episodes for otitis media and sore throat in the Department of Pediatrics. Results indicate that per episode costs with nurse practitioners as the initial provider are approximately 20 percent below the costs of episodes in which physicians are the initial provider. Examination of a limited amount of data on patient-reported measures of effectiveness indicates that while nurse practitioners' care is less costly, it is not less effective. These findings are particularly interesting in light of recent doubts expressed about cost-savings from using new health practitioners, and particularly nurse practitioners, in group practice settings.

Shortell, Stephen M., and Connie Evashwick. "The Structural Configuration of U.S. Hospital Medical Staffs." Medical Care, Volume 19, Number 4, April 1981, pp. 419-430. Grant No. HS 01978.

Using data from the 1973 American Hospital Association national survey of hospital medical staff organization, six factors of medical staff organization structure are examined in relation to each other and to hospital ownership, size, teaching status, geographic region and size of Standard Metropolitan Statistical Area (SMSA). The six factors include 1) Resource Capability; 2) Generalist Physician Contractual Orientation; 3) Communication and Control; 4) Local Staff Orientation; 5) Physician Participation in Decision Making; and 6) Hospital-Based Contractual Orientation. Several relatively distinct patterns emerged related to hospital ownership, size, teaching activity and region of the country, as well as interrelationships among the factors themselves. Differences between smaller and larger hospitals clearly emerged as well as a distinctive pattern for for-profit hospitals. All of the factors are subject to manipulation through administrative and/or public policy interventions and the findings suggest dimensions for future investigation of important policy issues related to the medical staff's role in cost containment, utilization, quality assurance and technology adoption.

Steinwachs, Donald M., et al. "The Role of New Health Practitioners in a Prepaid Group Practice: Changes in the Distribution of Ambulatory Care Between Physician and Nonphysician Providers of Care." Medical Care, Volume 14, Number 2, February 1976, pp. 95-120. Grant No. HS 00429.

Changes in the distribution of ambulatory care between physicians and new health practitioners (NHP) are examined in the pediatric and adult medicine departments of a prepaid group practice program. The study covers a three-year period during which NHP were extensively introduced to provide a broad range of ambulatory care. The source of data is a routine data information system that utilizes an encounter form to capture a minimal data set on every patient visit, including the provider's statement of diagnosis. Based on these data, changes in staffing are related to changes in workload and content of practice of both physicians and NHP.

Wennberg, John E. "Dealing with Medical Practice Variations: A Proposal for Action." Health Affairs, Volume 3, Number 2, Summer 1984, pp. 6-32. Grant No. HS 04932.

Most treatments, diagnostic tests, and surgical operations have highly variable use rates among hospital markets. One reason for the variation is professional controversies that arise because of ambiguous or incomplete scientific evidence on the value of specific services. To resolve the controversies--and to improve the opportunity for informed judgment on their use--better information on the outcome of care is needed. A second reason for the variation phenomenon is the individualistic practice styles adopted by physicians for reasons of their own or their patient's convenience or their interpretation of the requirements for "defensive" medicine. The reduction in demand for hospitalization based on these reasons offers opportunities for large savings without fear that needed services are being withheld.

Wennberg, John E., Klim McPherson and Philip Caper. "Will Payment Based on Diagnosis-Related Groups Control Hospital Costs?" The New England Journal of Medicine, Volume 311, Number 5, August 1984, pp. 295-300. Grant No. HS 04932.

Previous studies have shown that the administration rates for a few surgical procedures, such as hysterectomy, vary extensively among hospital market areas, apparently because of differences in physicians' practice styles. To see whether such variations occur for most causes of admission, all nonobstetrical medical and surgical hospitalizations in Maine for the years 1980 through 1982 were classified into diagnosis-related groups (DRGs) and the variations in admission rates among 30 hospital market areas were measured.

Hysterectomy rates varied 3.5-fold, but 90 percent of medical and surgical admissions fell in DRGs for which admission rates were even more variable, suggesting that professional discretion plays an important part in determining hospitalization for most DRGs. Losses in hospital revenues resulting from the DRG payment system could be offset if physicians modified their admission policies to produce more profit, well within the current limits of medical appropriateness. If this occurred, the net effect of a DRG program would be to exacerbate hospital cost inflation.

To be successful, cost-containment programs based on fixed, per-admission hospital prices will need to ensure effective control of hospitalization rates.

Wilensky, Gail R., and Louis F. Rossiter. "The Relative Importance of Physician-Induced Demand in the Demand for Medical Care." Milbank Memorial Fund Quarterly/Health and Society, Volume 61, Number 2, Spring 1983, pp. 252-277. Intramural.

The increase in the number of physicians entering practice in the 1980s will mean that expenditures for medical services will

continue their rapid rise if physicians are able to induce demand for their services. This paper summarizes the empirical evidence regarding physician-induced demand. The positive association between use or prices and the number of physicians in the area reported by many studies using aggregate data is found to be unconvincing because of basic methodological problems involving the identification of closely related effects, border crossing, and the choice of weights attached to the units of observation. Previous studies using disaggregated data have yielded mixed results and do not provide a conclusive answer to the issue. Data from NMCES which identify physician-initiated and patient-initiated demand separately, are used to analyze variables which are consistent with competing hypotheses concerning the physician's role as agent for the patient or as self-interested provider of medical services. Only a relatively small positive influence of the physician-to-population ratio on physician-initiated ambulatory use and expenses was identified; furthermore, there was no measurable effect on surgery or total expenses. The results suggest that concerns over the increasing supply of physicians have been excessive. Concerns about the effects of the current reimbursement system, however, appear to be well founded.

TECHNOLOGY ASSESSMENT

- o Cost-Effectiveness Analysis
- o Cost-Benefit Analysis
- o Cost of Illness
- o Diffusion of Technology

Avorn, Jerome L. "Benefit and Cost Analysis in Geriatric Care: Turning Age Discrimination into Health Policy." The New England Journal of Medicine, Volume 310, Number 20, May 17, 1984, pp. 1294-1301. Grant No. HS 04033.

The essay explores the limitations and inequities of cost-effectiveness and cost-benefit analyses, particularly as they apply to the elderly. In cost-benefit analysis, the alleged quantification is so imprecise and laden with value judgments that the numbers are useless ingredients in quantitative analysis. Cost-effectiveness analysis is useful without arbitrary judgments about the quality of life. Decisions on resource allocation are often made on the basis of "gut feelings," and these remain superior to delusional systems, no matter how detailed.

Berwick, Donald M., and Anthony L. Komaroff. "Cost Effectiveness of Lead Screening." The New England Journal of Medicine, Volume 306, Number 23, June 10, 1982, pp. 1392-1398. Grant Nos. HS 02063 and HS 04066.

Lead-screening programs may reduce childhood disabilities, but at what cost? Through a review of the literature, we performed a cost-effective analysis in which the costs, savings and health benefits of two lead-screening strategies--employing either a free erythrocyte protoporphyrin assay or blood lead measurement--were compared with each other and with a strategy of no screening in a population of three-year-old children.

When the prevalence of lead poisioning among the children screened is 7 percent or more, we estimate that free erythocyte protoporphyrin screening averts morbidity and results in net savings: It is both better and cheaper than no screening.

At prevalences below 7 percent, the net positive costs from screening and early treatment must be weighed against the noneconomic benefits of improved quality of life and considered in relation to other investments that could be made to benefit society. At all prevalence rates, free erythrocyte protoporphyrin screening is more cost effective than blood lead screening.

Greenberg, James A., and Roger Kropf. "The Economic Impact of Alternative Cardiac Care Unit Treatment Practices." Health Services Research, Volume 17, Number 1, Spring 1982, pp. 45-59. Grant No. HS 03538.

A case-mix strategy was used with hospital chart-abstract data from New Jersey to estimate the hypothetical savings in the cost of Cardiac Care Unit (CCU) care in the state that would result from the state-wide implementation of the following five policies: limiting uncomplicated Acute-Myocardial Infarction (AMI) patients to seven days of hospitalization; treating uncomplicated AMI patients at home; using the CCU only for diagnoses for which it is widely accepted as effective; tightening CCU admission criteria; and tightening CCU discharge criteria. The selection of these

policies was based on a review of the CCU literature and on empirical data from the New Jersey CCU system. The case-mix strategy involved: the creation and categorization of a list of diagnoses which are eligible for CCU treatment; the selection of a sample of hospitals for study; and the estimation of the savings which would result from the implementation of the hypothetical CCU policies throughout the state. The estimated savings were substantial compared to the total cost of CCU care in New Jersey, stressing the need for further investigation of the cost-effectiveness of current CCU treatment practices. In addition, the case-mix method used in this study is recommended for bringing considerations of the cost-effectiveness of clinical practice into public policy debates on the regulation of medical services.

Hellinger, Fred J. "Prenatal Care, Neonatal Intensive Care, and Infant Mortality." International Journal of Technology Assessment in Health Care, Volume 1, Number 4, 1985, pp. 934-944. Intramural.

The relationship between prenatal and neonatal intensive care, and infant mortality is examined. Both prenatal and neonatal intensive care are associated with improved survival rates. However, one is unable to identify which among the components of these two technologies are responsible for the beneficial effects, due to a lack of data and problems of self-selection bias. The paper demonstrates the problems in data collection and analysis faced by new and emerging technologies.

Hellinger, Fred J. "Status of Insurance Coverage for Organ Transplants in the United States: A Review of Recent Surveys." International Journal of Technology Assessment in Health Care, Volume 2, Number 3, 1986, pp. 563-570. Intramural.

This paper examines the coverage policies for organ transplants of Health Maintenance Organizations, commercial insurers, Medicaid, Blue Cross/Blue Shield, and Medicare. Information on coverage policies was obtained from recent surveys. These surveys reveal an absence of a consensus among insurers regarding coverage for heart, heart-lung, pancreas, and liver transplants, and a consensus among insurers regarding cornea and kidney transplants. Virtually all insurers cover cornea and kidney transplants. They also show that Blue Cross/Blue Shield plans and commercial health insurers provide the broadest coverage for organ transplants. As physicians and centers gain experience with transplants and as survival rates improve, it is likely that more insurers will cover more organ transplants.

Hodgson, Thomas, and Mark Meiners. "Cost of Illness Methodology: A Guide to Current Practices and Procedures." Milbank Memorial Fund Quarterly/Health and Society, Volume 60, Number 3, Summer 1982, pp. 429-462. Intramural.

Understanding the costs associated with illness and disease has become increasingly important as a result of the rapid rise in health care expenditures and the pressure this has put on both

public and private budgets. This paper delineates illness and disease costs into three major groupings--direct costs, indirect costs from losses in output, and psychosocial costs--and provides background to these costs. The strengths and weaknesses of current practices and procedures in estimating these costs are discussed with emphasis on the human capital approach as compared to the willingness-to-pay-approach. Recommendations are made for improving the application of existing methodology. The recommendations are designed to be helpful to both producers and users of estimates of the costs of illness and disease.

Hornbrook, Mark C., et al. "Reducing the Incidence of Non-A, Non-B Post-Transfusion Hepatitis by Testing Donor Blood for Alanine Aminotransferase." The New England Journal of Medicine, Volume 307, Number 21, November 18, 1982, pp. 1315-1321. Intramural.

Recent studies have established a relation between elevated alanine aminotransferase levels in donor blood and the incidence of non-A, non-B hepatitis in recipients of such blood. Routine testing of donor blood for alanine aminotransferase activity in order to reduce hepatitis is not currently supported, largely because the results of such testing are unknown.

This study assesses the potential economic benefits of screening donor blood for alanine aminotransferase as a means to reduce post-transfusion hepatitis. Benefits, defined as the expected costs of hepatitis potentially avoided, ranged from $898 to $31,629 per 1000 blood units collected. This wide range reflected lack of information about the natural history of non-A, non-B hepatitis.

Costs were defined as the direct costs of testing and the indirect costs associated with loss of blood product, additional donor recruitment, and informing donors of their abnormal aminotransferase levels; costs ranged from $3,151 to $4,003 per 1000 units.

The results suggest that if prospective studies demonstrate that exclusion of blood with elevated aminotransferase levels decreases non-A, non-B hepatitis in recipients, the net economic impact may be positive. However, because of major uncertainties about the medical consequences of non-A, non-B hepatitis, the benefit estimates are so broad that they preclude a definitive policy decision.

McPhee, Stephen J., and Deborah W. Garnick. "Imaging the Heart: Cardiac Scintigraphy and Echocardiography in U.S. Hospitals." Journal of Nuclear Medicine, Volume 27, Number 10, October 1986, pp. 1635-1641. Grant No. 4329.

The rapid growth of cardiac catheterization has raised questions about the availability of less costly, "noninvasive" tests such as cardiac scintigraphy and echocardiography. To assess their availability and rates of use, we surveyed 3,778 non-federal short-term U.S. hospitals in June, 1983. Overall, 2,605 hospitals (69%)

offered ^{201}Tl myocardial perfusion scans, 2,580 (68%) ^{99m}Tc equilibrium gated blood pool scans, and 2,483 (67%) cardiac shunt scans; 1,679 hospitals (44%) offered M-mode and/or 2-dimensional echocardiography, and 768 (20%) pulsed Doppler echocardiography. Volumes of procedures varied enormously among hospitals capable of performing them. High volumes of both scintigraphy and echocardiography were performed in a small number of hospitals. Larger, voluntary, and teaching hospitals performed higher volumes of both procedures. Despite widespread availability of these "noninvasive" technologies, high volumes of both cardiac scintigraphy and echocardiography procedures are concentrated in a small number of U.S. hospitals.

Muller, Charlotte, et al. "Cost Factors in Urban Telemedicine." Medical Care, Volume 15, Number 3, March 1977, pp. 251-259. Grant No. HS 01392.

This paper reports on the cost effectiveness of a pediatric primary care system utilizing nurse practitioners (NPs) linked to a physician consultant through bidirectional interactive cable television. In addition, it discusses ways in which multiple uses enhance the economic feasibility of a telemedicine consultation link in a given geographic area. The overall consultation rate during periods of remote physician coverage was 21 percent, compared with 24 percent during on-site coverage. The telephone became a partial substitute for the TV for some uses but could not replace it in diagnostic decisions.

As telemedicine is obviously underutilized in a one-satellite system, a comparison is made between a five-satellite network with other ways of delivering service. The resulting estimated cost of $18.50 an hour, or 2/3 of the cost of a physician providing direct care, includes a TV component of $5.30 an hour of use in a 1,750-hour year. The critical factor is that the NP can be a physician substitute if there is TV backup. The TV appears to prevent unnecessary referrals compared to a physician on site. Whether TV increases the length of the consult compared to the phone for conditions of equal severity is not entirely clear. If TV is compared to transporting a patient to a central place, the implicit value of transport time and disutility required to justify using TV is $7.55 per consult in a five-clinic network. Geographic and other barriers to physician availability enhance the potential for application of telemedicine.

Peddecord, Michael K., et al. "Utilization of MRI in an Outpatient MR Center." American Journal of Roentgenology (forthcoming 1987). Grant No. HS 04948.

Indications for Magnetic Resonance Imaging (MRI) examination and patient characteristics are evaluated for 4,561 MRI examinations performed at a freestanding outpatient MR Center between May 1984 and June 1986. Hospitalized patients accounted for less than 3% of the caseload. Examinations of the head and spine accounted for 60% and 31% of workload. Patients 65 or older made up 15% of caseload

during 1984 and 1985, and 21% in 1986. Referrals from neurologists, internists including sub-specialties and neurosurgeons accounted for 56%, 11% and 9% of patients respectively. The number of patients with prior Computed Tomography (CT), myelography and other imaging procedures declined significantly between 1984 and 1986. Indications for examination showed major emphasis on neoplastic diseases, degenerative diseases of the central nervous system including multiple sclerosis, disorders of the peripheral nervous system, and intervertebral disk disease. For all examinations, approximately 40% were interpreted normal. Substantial increases in patients referred for degenerative intervertebral disk disorders between 1984 and 1985 were observed. This study documents the increasing acceptance of MRI as an important primary imaging modality for a variety of conditions, particularly those of the brain and spine.

Ruchlin, Hirsch S., and John N. Morris. "Cost-Benefit Analysis of an Emergency Alarm and Response System: A Case Study of a Long-Term Care Program." Health Services Research, Volume 16, Number 1, Spring 1981, pp. 65-80. Grant No. HS 01788.

Cost-benefit analyses are routinely included in evaluations of acute care programs. In the case of long-term care, it is frequently alleged that cost-benefit analysis cannot be fruitfully applied. This article demonstrates the utility of applying cost-benefit analysis to evaluations of long-term care programs. A case study is presented in which cost-benefit analysis is used to evaluate an emergency alarm and response system developed to monitor the safety of vulnerable and disabled persons in their home environment.

Russell, Louise B. "The Economics of Prevention." Health Policy, Volume 4, Number 2, 1984, pp. 85-100. Grant No. HS 04392.

A review of cost-effectiveness studies of prevention supports two conclusions: (1) few prevention programs, if any, reduce medical expenditures; (2) even when prevention costs less per person than acute care, its medical costs per unit of health benefit can be as great or greater. So that future studies will allow comparisons over a wider range of medical choices, the paper proposes some steps toward the greater standardization of cost-effectiveness analyses of medical care.

Scitovsky, Anne A. "Changes in the Costs of Treatment of Selected Illnesses, 1971-81." Medical Care, Volume 23, Number 12, December 1985, pp. 1345-1357. Grant No. HS 04856.

This study, like two earlier studies by the author, examines the effects of changing medical technologies on medical care costs by comparing the costs of treatment of a number of common illnesses at two points in time, 1971 and 1981. While the earlier studies, covering the periods 1951-1964 and 1964-1971, showed that the main cost-raising changes had been a steep rise in the use of relatively low-cost ancillary services, such as laboratory tests and x-rays

("little ticket" technologies), this study shows that in the period 1971-1981 the use of these technologies hardly changed but that several new and expensive technologies ("big ticket" technologies) came into use, which raised medical care costs considerably.

Showstack, Jonathan A., Mary H. Stone and Steven A. Schroeder. "The Role of Changing Clinical Practices in the Rising Costs of Hospital Care." The New England Journal of Medicine, Volume 13, Number 19, November 7, 1985, pp. 1201-1207. Grant No. HS 04823.

To assess whether changes in clinical practice have contributed to rising hospital costs, we studied 2,011 patients who were hospitalized at the University of California, San Francisco, in 1972, 1977, or 1982.

For most of the 10 diagnoses studied, there was little change in total use of services by patients. In-hospital survival did not differ during the decade, and length of stay, numbers of special-care days, and use of laboratory services generally remained the same or declined. Only for patients with acute myocardial infarction did the use of imaging procedures increase substantially (e.g., cardiac catheterization was provided to 2 percent of patients in 1977 and 40 percent in 1982).

Contrary to conventional wisdom, "little-ticket" procedures, and new imaging techniques were commonly substituted for older, more invasive procedures. The primary causes of rising costs were the provision of surgery to patients admitted for acute myocardial infarction, delivery, or respiratory distress syndrome of the newborn and the provision of other intensive treatments for the critically ill.

Sloan, Frank, et al. "Diffusion of Surgical Technology: An Exploratory Study." Journal of Health Economics, Volume 5, Number 1, March 1986, pp. 31-61. Grant No. HS 04762.

The study presents an empirical analysis of the diffusion pattern of five surgical procedures. Roles of payer mix, regulatory policies, physician diffusion, competition among hospitals, and various hospital characteristics such as size and the spread of technologies are examined. The principal data base is a time series cross-section of 521 hospitals based on discharge abstracts sent to the Commission on Professional and Hospital Activities. Results on the whole are consistent with a framework used to study innovations in other contexts in which the decisions of whether to innovate and timing depend on anticipated streams of returns and cost. Innovation tends to be more likely to occur in markets in which the more generous payers predominate. But the marginal effects of payer mix are small compared to effects of location and hospital characteristics, such as size and teaching status. Hospital rate-setting sometimes retarded diffusion. Certificate of need programs did not.

Wagner, Douglas P., Thomas D. Wineland and William A. Knaus. "The Hidden Costs of Treating Severely Ill Patients: Charges and Resource Consumption in an Intensive Care Unit." Health Care Financing Review, Volume 5, Number 1, Fall 1983, pp. 81-86. Grant No. HS 04857.

A detailed survey of the resources used by two common groups of intensive care unit (ICU) admissions in one medical center hospital found substantial cross-subsidization, with healthier patients admitted for monitoring using significantly less labor resources than sicker patients. Both groups had equal bed charges. This suggests that the resource costs of admitting stable patients to an ICU for monitoring are smaller than their average bed charge. On the other hand, the actual resource costs of treating sicker patients are almost twice their billed ICU charges.

ICU care is approximately 3.8 times more expensive than routine hospital care, a higher ratio than previously estimated. These results should be considered when estimating the national cost of treating severely ill patients and when proposing changes in hospital reimbursement policies, especially with regard to ICU patients.

Watts, Carolyn A., et al. "Cost Effectiveness Analysis: Some Problems of Implementation." Medical Care, Volume 17, Number 4, April 1979, pp. 430-434. Grant No. HS 00694.

Cost benefit analyses in the health sector frequently deal with situations in which the money value of the benefits is either difficult or impossible to measure. This paper asserts that the use of cost effectiveness analysis as a means of escaping the need to place a dollar value on benefits does not escape the need for appropriately discounting these benefits when they accrue in different periods over time. The choice of an appropriate discount rate is discussed, and the benefits of elective hysterectomy are used to demonstrate that a serious bias can result from ignoring the need for discounting.

Weinstein, Milton C., and William B. Stason. "Cost-Effectiveness of Interventions to Prevent or Treat Coronary Heart Disease." Annual Review of Public Health, Volume 6, June 1985, pp. 41-63. Grant No. HS 04920.

Heart bypass surgery appears to improve quality of life for angina patients. But the cost-effectiveness of the procedure varies widely with the severity of the angina and the extent of coronary artery disease in the patient. Heart bypass surgery costs $30,000 in surgical and treatment resources for every quality-adjusted year of life gained when used for patients with severe angina and one occluded artery. A quality-adjusted year of life is an added year of life expectancy adjusted for changes in health status, such as sickness, limitation of activity, and pain and suffering. By comparison, costs are $470,000--more than 15 times higher--for each quality-adjusted year of life gained when heart bypass surgery is used on patients with one blocked artery, but only mild angina.

The cost per quality-adjusted year of life gained from heart bypass surgery declines as the disease becomes more extensive. The study additionally deals with the relative cost-effectiveness of the use of beta-blockers, treatment of mild hypertension, use of coronary care units, and employment of cholesterol-lowering drugs for preventing and/or treating coronary heart disease.

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